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AN ESSAY
ON THE
INDIGENOUS GRASSES
OF
IRELAND,

BY
JOHN WHITE,

ONE OF THE GARDENERS TO THE RIGHT HON. AND HON.
THE DUBLIN SOCIETY.

"HE CAUSETH THE GRASS TO GROW FOR THE CATTLE, AND THE
HERB FOR THE SERVICE OF MAN; THAT HE MAY BRING FORTH
FOOD OUT OF THE EARTH." PSAL. CIV. 14.

DUBLIN:

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1803.

AN ESSAY

OF THE

INDIGENOUS GRASSES

OF

IRELAND



THE DUBLIN SOCIETY

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PRINTED BY HARRIS AND CAMPBELL,

15, NASSAU-STREET.

1847.

TO THE

RIGHT HON. JOHN FOSTER,

CHANCELLOR OF THE EXCHEQUER, PRESIDENT OF THE FARMING SOCIETY OF IRELAND, VICE PRESIDENT OF THE DUBLIN SOCIETY, &c. &c.

SIR,

THE many wise and salutary regulations, which you have made for the good of your country, the zeal which you have always evinced for the advancement of its agricultural interests, and the encouragement which you have given to every undertaking tending to promote that end, are motives which would induce me, as an *Irishman*, to select you as the person of all others under whose patronage I

would wish to place the following pages.

But there are other motives which induce me to solicit your protection. There are private obligations which I rejoice to have an opportunity of thus publicly acknowledging. To you I am indebted for the enjoyment of my present situation. It was you who first introduced me to that liberal and enlightened body of Noblemen and Gentlemen whom I have now the happiness to serve. Through you I am enabled to cultivate that science which is the pride and comfort of my life. In short, you have on all occasions proved yourself my patron and benefactor. Permit me, therefore, to inscribe to you the following treatise, and however unworthy it may be of such an honor, I trust

its

its object will be with you a sufficient apology for its imperfections; and that you will consider it as a small token of esteem, veneration and gratitude.

I have the honor to be,

With the greatest respect,

SIR,

Your most obliged, obedient,

And very humble servant,

JOHN WHITE.

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apology for its imperfections; and that
you will consider it as a small token
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JOHN WHITE

PREFACE.

THE natural grasses produced in each country, and particularly in Ireland, whose mild, open, moist climate, and whose soil is by nature congenial to their growth, make no small class of its most beneficial although in general most neglected herbage.

When we consider that the produce of milk, butter, beef, mutton, tallow, leather, wool, &c. &c. depends in a great measure upon the proper cultivation of the indigenous grasses, any attempt to render them better known, and to improve that cultivation, cannot be uninteresting to the agriculturist; for however useful those grasses which are called artificial may be, they

they are by no means of equal importance with the natural produce of the country; for were there not such a variety of grasses growing in different soils, springing and flowering at different seasons, and thriving best in various situations, we could expect but little from the cultivation of artificial grasses, as they would be altogether inadequate to the support of our cattle.

The choice and culture of natural grasses is a part of agriculture which our predecessors seemed to take little notice of. This may be justly attributed to their ignorance of their number and specific differences; for heretofore there were but very few natural grasses known to our ancestors, or if known they have not been handed down to us in the native language.

Those they have taken notice of they seemed to rank in sets, and to
each

each of these sets they gave a name; but they seem to have had no name for the individuals of these sets. Thus under the name of *Bruimsean*, or *Couch-grass*, they included *Triticum repens*, *Poa pratensis*, *Holcus mollis*, and all those grasses which have creeping roots. *Briza media*, *Cynosurus cristatus*, and all those with small naked wiry stems, they ranked under the name of *Cuisog*, or *Trathnin*. *Lolium perenne*, *Lolium temulentum*, and those with imbricated spike-like heads, they called *Raithleadh*; and all coarse, harsh or strong grasses, such as *Poa aquatica*, *Schoenus mariscus*, *Arundo colorata*, and all the strong carices, they knew by the name of *Feur seasglar*.

This ignorance of the number and specific differences of the grasses, was one great cause why their cultivation has been so much neglected by our predecessors. In order to remedy this

b

defect,

defect, I have compiled the present generic and specific names in Irish for our indigenous grasses, that those unacquainted with Botany may know that under each of the common names there have been included a variety of different species.

The cultivation of grasses at present is but in an infant state, and will continue so until Gentlemen obtain a knowledge of the different species, so as to be able to remark the various soils most congenial to their growth. For without this knowledge no scientific experiments can be performed, nor can their best assortments, or their true culture, be ascertained.

The mode of experiment which I would recommend, in order to ascertain the grasses that would constitute a good meadow in every soil and situation, would be the following.

Suppose a farm which abounded
with

with hills, plains, vallies, &c. I would about the month of July, when most grasses are in flower, perambulate that farm. I would take a view of the moist meadows or low grounds, and note down those grasses which appeared most luxuriant. Where I found any material difference in such situations, I would naturally conclude there must be a change in soil: I would therefore examine the soil in the different places, according to the luxuriance of the grasses. The declivities and their different aspects, on the summits and on the levels, in each part of the farm, I would also examine; for, according to observations I have made in the Botanic gardens, and elsewhere, I find a material difference between the luxuriance of many plants, from their not growing in the same situations. These remarks I would sum up, and from them conclude which were the most beneficial grasses,

as a mixture, for each soil. Then, if I did not choose to try my experiments on a large scale, I would break up a perch or more on the different soils, and sow those grasses which appeared to me when in flower most productive and beneficial for constituting a good meadow. By these experiments I would be enabled to judge of their future utility; and the result would determine whether it would be advisable to break up the remainder of the different soils, and pursue the same methods.

The agricultural advantages likely to result from the establishment of a Botanical garden, were wisely foreseen by the Dublin Society. These advantages we already experience; for it has been the cause of displaying a variety of grasses, which heretofore were unnoticed, or perhaps unknown, in this country. Every year since it was first instituted, additional discoveries have been

been made in the natural grasses, as well as in the other indigenous herbage. So anxious are Gentlemen to acquire a knowledge of the true grasses, that they wait impatiently for the time when the subject of this most useful tribe is discussed by the Professor* appointed by that spirited body of Noblemen and Gentlemen, the Dublin Society.

The subject is handled in a manner which reflects equal honor on the Gentleman himself and on the Dublin Society; the talents and information which he displays, amply justify the choice which they have made.

We may shortly expect to have some valuable additions made to the knowledge of our indigenous plants; as the taste for Botany is becoming very general, and is pursued by some with ardour and with effect.

Trinity

* Walter Wade, Esq. M.D. M.L.S. &c. &c.

Trinity College has also established a Botanic garden, about a mile from the Castle, towards the east, and are making much progress towards its completion. Their present Professor* has been elected for the second time, and latterly almost unanimously; which circumstance fully demonstrates the high value set on this Gentleman's abilities by that antient seminary of learning, and that unwearied pains had been taken by him to promote this delightful study.

There is also a Botanical garden establishing at Cork; and it is said that similar ones are in contemplation elsewhere in the kingdom.

Botanical gardens are among the most important institutions. They afford us the means of acquiring a knowledge of all the native plants, and as many of the foreign as can be

* Robert Scott, Esq. M. D. &c. &c.

be collected. By them we are enabled to discriminate the different species, and when discriminated to make trial of their utility. Without knowing the different grasses, it is impossible to determine on their agricultural merit; or not being acquainted with the different herbage, to know their œconomical or medicinal use; or even were we in possession of all their virtues, what doth it avail, if we be incapable of selecting one species from another.

The number of natural grasses in Ireland, as well as that of its other herbage, is as yet far from being fully known; nor is it likely to be discovered until each county is separately botanized, and that at different seasons of the year. For a tract of ground may be traversed by many, who are botanically acquainted with plants, yet new discoveries may be made by others who follow.

What

What must Ireland, or even one county produce, when Howth, a small tract of ground contiguous to Dublin, containing about 900 acres, produces such varieties; and although often searched with diligence by many professed adepts in botany, yet scarce any return without a fresh discovery.

This remark has also been made to me by a man whose general knowledge of plants is scarcely to be equalled in the British dominions; and to whose abilities I acknowledge myself much indebted, for the many instructions I have received from him at the commencement of my botanical studies.*

Many persons may be desirous of knowing the cause, and upon what foundation I have taken to compile generic and specific names in Irish for

* Mr. John Underwood, head gardener to the Right Hon. and Hon. the Dublin Society.

for our indigenous produce. The reason of this I will explain. Having been enabled by the Dublin Society to make some excursions in search of plants, through the different parts of the kingdom, I got possession of many of their Irish names. Upon looking over these names some time after, and seeing the confused, irregular manner in which they stood, when compared with the Linnæan method, I thought from the language there could be a regular system formed. This I for some time kept in view. I then collected many of their old Irish names from such books, ancient and modern, as I could procure. Some time after a book fell into my hands, the work of a Gentleman, an enlightened member of society, whose name will be ever held in veneration by the lovers of Gaelic, and to whom Ireland is indebted

c

debted for rescuing from utter oblivion its ancient tongue.* I was roused by the accounts given of this language, its copious and expressive terms, to carry on my former design of compiling the generic and specific names after the manner mentioned, following the Linnæan method as nearly as possible.

The scientific names, which are marked by a circumflex, are given in the Irish character, and also in the Italic, for the use of those who may not be acquainted with the Irish letter. And those that follow are the synonymous names by which they are generally known.

Seeing that a catalogue of the names, scientifically compiled, would appear rather bare, I proceeded further, so as to give generic and specific descriptions of each, in which I

was

* General Vallancey.

was assisted by Wildenow's Species Plantarum, Smith's Flora Britannica, and Hudson's Flora Anglica.

I have also mentioned their natural habitats, and local places of growth, with the situations in which I have found them myself, and also the places in which they have been found by others.

Their manner of growth, time of flowering, duration and utility in mixtures, &c. I have given from experience and observations I have made on them for some years back. And according to the arrangement in the Botanic gardens, in that division called Pecudarium or Cattle division; as also from observations I have made in the neighbouring fields and elsewhere, I have mentioned the different species of cattle which eat or reject each grass.

At a future time I intend publishing an account of the Trees, Shrubs,

and herbaceous Plants, which are indigenous to Ireland, on a plan similar to that of the Grasses, with the uses to which they were applied in medicine, &c. as appears from antient Irish manuscripts.

I have had an opportunity of acquiring a knowledge of the medicinal virtues of many plants, in my occasional excursions to the country, and from the numerous applications which have been made for herbs in the Botanic gardens for the purposes of medicine, and have always taken a memorandum of the plants applied for, how used, the disorder, their effect, &c. However, the publication of this work must be postponed until I am enabled to collect the proper materials, such as their habitats, their uses in the different provinces, their common Irish names, &c. &c.

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ABBREVIATIONS EXPLAINED.

Cal. calyx.

Cor. corolla.

A. annual.

P. perennial.

Ob. observations.

Fl. Dub. Flora Dubliniensis.

ERRATA.

- Page 20, line 17, for *μηλοϑῦερ* read *Μηλοϑῦερ*.
— 22, line 19, after inches insert ,
— 31, line 6, for *abac* read *abaç*.
— 31, line 7, for *abhac* read *abhach*.
— 32, line 6, for *robheg* read *robhéç*.
— 37, line 2, for *ζηαζῦερ* read *ζηααζῦερ*.
— 42, line 12, for *μελοηζῦερ* read *Μελοηζῦερ*.
— 43, line 13, for *μελοηζῦερ* read *Μελοηζῦερ*.

Entered at Stationer's-hall.

AN ESSAY
ON THE
INDIGENOUS GRASSES
OF
IRELAND,
&c. &c.

DIANDRIA DIGYNIA.

ANTHOXANTHUM.

Cal. Husk of 2 valves, and 1 flower; *Cor.* Husk
2 valves tapering to a point. *Seed* 1.

A. Spike oblong-eggshaped: florets longer than
the awns, on somewhat of foot-stalks.

Common in meadows and pastures. It also
abounds in young plantations, and peat bogs, flou-
rishing in a particular manner in the latter. As
a meadow grass, it is insignificant from its naked
stem and short foliage; as a pasture, it may be
useful from its early spring, before others are far
in vegetation, but when separate it has a tolerable
produce, particularly in moist or shady places, as
young plantations, &c. I have seen it in great
perfection through a planting at *Margarets*, on
the

the estate of the Right Hon. John Foster, Collon; and it appeared to me to be the predominant grass. It is an early flowering grass, and is said to occasion the delightful smell of new mown hay. However, my opinion is, that hay will have a delightful smell exclusive of it, but not in so great a degree. For it certainly possesses a more pleasant odour than any other species cultivated in the botanic gardens. This I have experienced in the present spring. For I found by chewing each sort which the garden contains, separately and at different periods, that none emitted so pleasant a scent as this *Anthoxanthum Odoratum*. It is therefore a grass, although not very prolific, fit to make a proportionable part when any ground is laying down for meadow, as its flavour would probably cause other grasses, when made into hay, to be more relished by cattle. It is also said, that if it be gathered whilst in blossom, wrapt in a paper, and carried in the pocket, it retains the smell of new mown hay for a long time. It is but of little consequence to the farmer, as being not very productive, nor yet palatable to cattle, unless when made into hay. Cows, goats, sheep, and horses eat it.

P. May. July.

IRISH.

IRISH. { *Errachfēr de òbolad.*
 { *Errachfher dedbbholadh.*

ENGLISH.—*Sweet-scented Spring-grass. Sweet-smelling Vernal-grass.*

Ob. *Stems* one foot or more, simple, slender, furrowed, often knotted, naked at top. *Leaves* short, flat, acuminate; those on the stem very short, spreading. *Sheath* very long, somewhat bellying, furrowed, with a spear-shaped, upright, skinny sheath-scale. *Spike* terminating, upright, acute, many-flowered. *Flowers* on short foot-stalks. *Calyx*, valves skinny, acute, sometimes with small hairs, rough on the keel. *Corolla*, valves nearly equal, shorter than the calyx.

TRIANDRIA MONOGYNIA.

ERIOPHORUM.

Husks chaff-like, tiled on every side: *Bloss.* None.

Seed 1, encompassed by very long wool-like hairs.

vaginaturn.

E. Stem cylindrical, sheathed: spike solitary: husk skinny.

Frequent in moors and upland bogs. A grass of little worth for cultivation. P. Feb. April.

IRISH. { *Cennabán monadh.*
 { *Cennabhán monadh.*

ENGLISH.—*Mountain Cotton-grass. Single-headed Cotton-grass. Hairs-tail-grass. Hares-tail-rush. Moss-crops.*

Ob. *Roots* closely matted. *Stems* nearly cylindrical, twice as long as the leaves. *Root-leaves* skinny at the base, sheathing, linear, and imperfectly three-sided, striated and somewhat recurve. *Sheaths* inclosing the stem, rather bulging; the uppermost purple at the base. *Spike* egg-shaped, solitary, terminating. *Glumes* skinny, spear-shaped,

shaped, brown; the lower ones barren. After impregnation and flowering, the upper glumes throw forth a very long white wool, which remains on until the middle of summer or longer. It may be distinguished from the two next species by its single head.

E. Stems cylindrical: leaves flat: spikes on fruit-stalks. *polystachion.*

It grows in bogs and marshy places, particularly in holes or drains where water lodges. It is a grass of no great consequence, agriculturally speaking, as it does not thrive out of marshy or watery situations. P. May. June.

IRISH. { *Cennabán lethanúillec.*
 { *Cennabhán lethandhuillech.*

*Ceanabhan mona. Ceanach na mona. Keanuan
ban. Sioda mona. Siodha mona. Sgathoga
fiona. Scabhog fiona.*

ENGLISH.—*Broad-leaved Cotton-grass.*

Ob. *Roots* fibrous. *Stems* upright, cylindrical, striated, leafy, smooth. *Leaves* broad, flat, linear-lance-shaped, acutely keeled towards the top, sheathing each other at the base. *Spikes* many, supported by foot-stalks, egg-shaped. *Glumes* linear.

linear-lance-shaped, skinny. After impregnation and flowering, the glumes send forth a long white wool drooping upon lengthened foot-stalks. It may be distinguished from the next species by its roots not creeping, by its broad leaves, and the drooping manner of its woolly spikets.

angustifolium.

E. Stems cylindrical: leaves channelled and three-cornered: spikes nearly upright, on fruit-stalks.

This is a very common grass in all bogs and boggy situations. Cattle feed on it during the winter, but in summer they pass it over untouched. It forms a great part of the cover in most bogs, and is an useful species at a season when others lie inactive. It requires no cultivation, as all bogs naturally produce it, nor would it bear cultivation out of marshy or boggy situations. The down produced from the heads of the above three species is often collected by poor people to stuff their pillows with. They also use it to make wicks for candles, but it becomes brittle when very dry. P. June.

IRISH. { *Cennabán cumangduillec.*
 { *Cennabhán cumhangdbuillech.*

ENGLISH.—*Narrow-leaved Cotton-grass.*

Ob.

Ob. *Roots* creeping. *Stems* cylindrical, slender, striated, smooth. *Leaves* somewhat shorter than the stems, semicylindrical, channelled, three-cornered at top, sheathing at the base. *Spike* egg-shaped, three mostly on each stem, and upon foot-stalks. *Glumes* brownish, skinny on the edges. After impregnation and flowering, the glumes send forth a long white wool standing nearly upright. It is distinguishable from the former by its narrow leaves; by its creeping roots; and by its down being nearly erect.

N A R D U S.

Calyx, None. *Corolla*, 2 valves.

N. Spike bristle-like, straight: the florets pointing in one direction.

stricta.

A common grass in heaths and mountains, and in such places is useful to some species of cattle at times.

It is a stiff, hard grass to the touch, generally short, and for agricultural purposes of little merit. Cows and sheep are not fond of it. Goats and horses eat it.

P. June, Aug.

IRISH.

IRISH. { *Fitigh direch.*
Fitigh direch.

ENGLISH.—*Matweed.* *Small matweed.* *Heath matweed.* *Mat-grass.*

Ob. *Roots* fibrous. *Stems* about eight inches, somewhat curved inward, rigid, nearly three-cornered. *Leaves*, those from the root closely matted, spreading, very narrow, acute, four-sided, lightly pubescent, and somewhat of a sea-green. *Spike* terminating, solitary, slender. *Florets* all pointing to one side.

TRIANDRIA

TRIANDRIA DIGYNIA.

PHALARIS.

Cal. 2-valved, keeled, of an equal length to, and inclosing the corolla.

P. Panicle cylindrical, spike-like, awnless: glumes *arenaria*. of the calyx keeled, very entire, ciliated: stems branched at the base.

It grows on sandy banks along the sea. Abundantly along the sand banks at Howth, and between Howth and Baldoyle. At Sandymount along the banks, county of Dublin.

A grass of no merit in an agricultural point of view, being of a diminutive size. A. June.

There is a species of the Phalaris (not indigenous) cultivated in the botanic gardens, called *Phalaris nodosa*, or knotted canary grass, and from my observations on it for years back, I would consider it as a good meadow grass. It is a perennial, and not over coarse; it produces root-leaves, stems, and stem leaves in abundance; it is a sizable grass, freely growing from seeds, not

furnished with creeping roots, and apparently thrives well on any soil. It were to be wished that the practical farmer would turn his attention for a year or two, on a small scale, to this grass, as it might prove more beneficial for meadow than some highly recommended.

IRISH. { *sléghéir traghainmhech*.
 { *Sleghfher traghainmhech*.

ENGLISH.—*Sea Canary-grass*.

Ob. *Roots* fibrous. *Stems* many, cylindrical, about six inches, widely standing out, naked at top. *Leaves* sheathing, lance-shaped, somewhat rough on the edges. *Sheath* bellying, striated, without hairs. *Spike* oval-lance-shaped, terminating, somewhat simple, scarcely paniced, or in divided lobes. *Calyx* egg-shaped: valves equal, lance-shaped, flatted, three-nerved, minutely pointed. *Corolla*, valves equal, blunt.

PANICUM.

Cor. 3-valved, the third valve very small.

sanguinale.

P. Spikes finger-like, knotty on the inside of the base: flowers in pairs, awnless: sheath dotted.

A few

A few specimens of this very scarce grass were found on the sand hills of Doagh, county of Clare. Doctor Wade's *Plantæ Rariores*.

I do not know of what utility this grass is, in an agricultural point of view. A. July.

IRISH. { *Panicfēr Coſ-coiligh*.
 { *Panicfbér coſchoiligh*.

ENGLISH.—*Cocksfoot Panic-grass*.

Ob. *Roots* fibrous. *Stems* many, decumbent, one foot, knotted, branched. *Leaves*, even on the surface, sometimes with long hairs. *Sheath* striated, sometimes hairy, dotted. *Spikes* finger-like, slender.

PHLEUM.

Cal. 2-valved, strap-shaped, ending in two dagger points including the corolla.

P. Spike cylindrical, very long: calyx ciliated on the keel, awned: stems upright. *pratense*.

Moist meadows and pastures. This is a very productive grass in moist meadows, furnishing leaves and stems in abundance, and also very prolific in seed. It is a tall coarse grass, and if cultivated

vated separately in low grounds, would give an ample crop. It would answer in mixture with the *Agrostis stolonifera*, which is also most productive in the like situations. Grounds liable to inundation are best adapted for these two, and in conjunction their produce must be great. *Phleum pratense* is a late flowering grass, which sends forth numerous strong stems, furnished with stem leaves better than half way. The *Agrostis stolonifera* also furnishes many stems, and abundance of leaves; but, from the debility of its stems, and weight of the panicles when appearing, is obliged to lean on the under part, which, by this time, is sending forth fresh flowering stems, whose tops soon appear through those parts leaning, and in a short time become matted, to the great detriment of the whole. As the *Agrostis stolonifera* soon spreads over the surface, it would make a great progress in its leaves and stems before the other began to spring, and would be in a state to be supported and raised gradually, by the strong and leafy stems of the *Phleum pratense*. Through the gradual elevation of the *Agrostis stolonifera* thus raised, and its feeble stems crossing the stem leaves of the *Phleum pratense*, there would be an admission of air to the bottom, which
would

would encourage and facilitate its under growth, and preserve it from scalding, which otherwise would be, or generally is the case. The Agrostis in this mixture would qualify the more coarse Phleum: they might be cut about the latter end of June; after which the former would shoot afresh and flower the latter end of August, forming a fine verdure, an after-grass, or cover to the naked butts of the Phleum pratense, which shoots not a fresh that season after being cut. Cows, horses, and goats eat it. Swine refuse it. Sheep dislike it. P. June. July.

IRISH. { *Loícaitfēr léna.*
 { *Loíchaitfher léna.*

ENGLISH.—*Meadow Cat's-tail-grass. Common Timothy-grass. Hard-grass.*

Ob. *Roots* fibrous. *Stems* upright, from three to four feet, striated, leafy, naked at top. *Leaves* somewhat rough. *Sheath* long, cylindrical, striated, with a blunt, short, skinny sheath-scale. *Spikes* solitary, erect, cylindrical, sometimes from four to six inches long, blunt. *Calyx*, valves ciliated on the keel. It may be distinguished from the *Alopecurus pratensis* by its spikets not lying closely tiled, and by its long rough cylindrical spike.

P. Spike

nodosum. P. Spike cylindrical : stems knee-bent at the base : leaves flanting : roots bulbous.

Along the sandy banks between Clontarf and Howth, county of Dublin. On the sides of Mount Oriel and Carrickmagough, near Collon, county of Louth. A grass of little consequence to the farmer, being neither early, productive, nor sizable. P. June. July.

IRISH. { *Loícaitfēr cnapać*.
 { *Loíchaitfher cnapach*.

ENGLISH.—*Knotted cat's-tail-grass*. *Bulbous-rooted cat's-tail-grass*.

Ob. *Roots* bulbous. *Stems* decumbent and knee-bent at the base, then upright. *Leaves* pointing in two opposite directions, smooth except at the edges. *Spike* cylindrical, blunt, from one and one-half to two inches long. It resembles the former, but distinguishable by its smaller size, its knee-bent stems, and by its sheaths covering the stems.

alpinum. P. Spike egg-cylindrical : awns the length of the husks.

Near the summit of Lettery Mountain, Ballinahinch, in Cunnamara, county of Galway, a few specimens flowering in August. Doctor Wade's

Plantæ

Plantæ Rariores. A grass of no merit in an agricultural point of view. P. July.

IRISH. { *Lofcáirfén ailp.*
 { *Lofchaitfhér ailp.*

ENGLISH.—*Alpine Cat's-tail-grass.*

Ob. *Roots* tuberous, somewhat creeping. *Stems* solitary, ascending, one foot, leafy, naked at top, smooth. *Leaves* rough on the edges, with very short sheath-scales. *Spike* scarcely one inch, egg-cylindrical, blunt, dark purple. *Calyx*, glumes ciliated with long hairs, which are somewhat stradling. *Awn* straight, nearly the length of the glumes.

ALOPECURUS.

Cal. 2-valved. *Cor.* 1-valve.

A. *Spike* cylindrical, tapering.

pratensis.

Common in meadows and pastures.—This is an excellent meadow grass, and one the farmer should delight to behold in his meadows, as it has to recommend it, earliness, quantity, quality, and good size: not being too rigid, and affording a plentiful after-grass. When the *Alopecurus pratensis* is cultivated

cultivated alone, it is very apt to lodge, as appeared to me from the observations I had made on a square plot allotted to it, in the farmers division, botanic garden. It retained its plot, and although placed in a dry situation, and without the help of manure, appears very luxuriant. Notwithstanding this, it is said to grow in moist soils only. I allow it thrives well in a moist soil, and I also know its produce would be little inferior in a dry one. Were a field to be laid down with the seed of *Alopecurus pratensis*, in mixture with those of *Festuca pratensis* and *Poa trivialis*, they in conjunction would form a fine meadow. The *Festuca pratensis* being a stouter grass, but not so lofty as the *Alopecurus pratensis*, would contribute to support the latter, and prevent its being lodged by rain or high winds, whilst the *Poa trivialis*, which flourishes best when in mixture with others, would produce a sufficiency to qualify the other two. The *Festuca* and *Poa* flowering the latter end of June or beginning of July, the *Alopecurus* would sustain no material loss by waiting the time of their cutting, as its stems continue green long after the spikes decay. The after-grass from these three would also be abundant; for, with the ample produce of *Alopecurus pratensis* and *Festuca pratensis*,

pratensis, the *Poa trivialis* would continue sending forth flowering stems in succession until late in September. Sheep, horses, and goats eat it. Cows and swine are not fond of it. P. May. June.

IRISH. { *Ulploſſhén léna.*
 { *Ulploſhér léna.*

ENGLISH.—*Meadow Fox-tail-grass.*

Ob. *Roots* fibrous. *Stems* two feet or more, upright, leafy. *Leaves* somewhat rough. *Sheath-scale* short, striated. *Spike* from one to two inches, upright, close, soft, acute, many flowered. To the eye of the inexperienced botanist it may appear as *Phleum pratense*, but is readily distinguished from it by its long awns, its close tiled florets, its soft feel when drawn between the hand, and by its tapering spike.

A. *Stems* feeble, knee bent; spike cylindrical; *geniculatus.*
 awns of the calyx longer than the valves; blossom awnless.

Common in stagnant waters, in muddy ditches, and where water lodges during the winter; marshes in the Phoenix Park, North-wall, in the Lots, in muddy streams and ditches about Glasnevin, Finglass and Drumcondra, county of Dublin.

This species, as a meadow grass, is of no great consequence to the farmer, for in general it extends along the surface, putting fibres from the joints, and produces but a short flowering stem, which rather ascends* than grows upright. It is far preferable as a pasture grass, and this only in low or moist grounds. It naturally grows in muddy ditches, ponds, and sides of rivulets, and in such places from its luxuriant foliage is not worthless. It is very acceptable to some species of cattle who retire to such places through thirst, and are often detained a considerable time browsing on it. It does not bear cultivation well on dry grounds. A variety of this species, with silver striped leaves, has been found growing in the county of Wicklow, by Mr. Edward Hodgins, nurseryman, Dunganstown. He has furnished the botanic gardens eight years ago with this elegant variety, and it has retained its variegation ever since. Mr. E. Hodgins's exertions in collecting and cultivating curious varieties of shrubs, herbaceous plants, &c. claim public notice. Sheep, goats, cows, and horses eat it. Swine refuse it. P. May. Aug.

* By an ascending stem is meant one that grows obliquely upwards.

IRISH.

IRISH. { *Ulplosfhēr glunlúbta.*
Ulplosfhēr glunlúbtha.

ENGLISH.—*Knee-bent Fox-tail-grass. Float Fox-tail-grass. Spiked float-grass. Spiked water-grass.*

Ob. *Roots* fibrous. *Stems* very long, floating when in water, knotted, knee-bent; lower joints putting forth fibres; upper ones ascending, leafy, branched, smooth. *Leaves* somewhat rough. *Sheath-scale* very slender, whitish. *Spike* cylindrical, short, bluntish, many-flowered, inclining to purple. *Calyx*, valves nearly equal, very blunt. *Awns* longer than the calyx.

MILIUM.

Cal. 2 valved, 1 flowered: valves nearly equal.

Cor. very short. *Summits* pencil-shaped.

M. Flowers in panicles, scattered, awnless.

effusum.

It generally grows in moist shady woods, but is not common. In a wood at Tinnehinch, on the estate of the Right Hon. Henry Grattan, county of Wicklow. Mr. John Underwood.

Were this grass to be introduced in a meadow, it might, from its size, and the spreading manner in which its stems grow, be a mean of supporting others, which, from their debility, are unable to support themselves until they arrive to perfection. It is far preferable for meadow than for pasture. It produces many long stems, which are not very coarse, and also a tolerable quantity of leaves; but the leaves are short, and do not endure inclement weather. In shady woods not overgrown, this grass would bear cultivation, and have an ample produce. It is a grass that has not been noticed by the agriculturalist, perhaps owing to its rare habitats. Sheep, goats, cows, and horses eat it. P. June. July.

IRISH. { *Mile-dygher coitchion.*
 { *Miledfbér coitchion.*

ENGLISH.—*Common Millet-grass. Soft Millet-grass.*

Ob. *Roots* fibrous. *Stems* many, upright, three feet or more, leafy, smooth, striated. *Leaves* half an inch broad, flat, rough on the edges. *Sheath-scale*, egg-shaped, rent-like at top. *Panicle* terminating, upright, loose, many-flowered; little branches spreading, waved, rough on the upper part. *Glumes* egg-shaped, concave, somewhat rough.

rough. *Stamens* double the length of the glumes. *Style* feather-like, standing out from the sides.

AGROSTIS.

Cal. 2 valved, 1 flowered, rather smaller than the blossom. *Summits* set lengthways with stiffish hairs.

(1) *With Awns.*

A. Calyx egg-shaped; valves nearly equal; awn *caninae*. bent, twice the length of the corolla, fixed just below its middle; stems prostrate, somewhat branching.

Moist meadows, pastures, and in the vallies of mountain grounds. Marshy situations at the foot of the Dublin mountains, and Howth, county of Dublin. Moist meadows about Collon and Tinure, county of Louth. Common in similar situations. Were the farmer or grazier acquainted with this grass, and observed, by their cattle, what nourishment it affords to some species in the vallies of their mountain grounds, and in their low moist meadows, they would not perhaps pass it over so often unnoticed. They are not aware that this species

species is a great mean of supplying them with good mutton, milk, &c. ; and although a small grass, it is more beneficial to them than many more lofty which surround it. It is a low growing grass, producing much foliage, which is very fine, and has one good peculiarity, that of growing in the dead season, when others more noticed lie dormant. As a meadow grass, no way desirable : as a pasture grass, very acceptable in moist low meadows or boggy grounds. Cows and horses eat it.

P. July.

IRISH. { *Taenfhér donn.*
 { *Taenfhér donn.*

ENGLISH.—*Brown Bent-grass.*

Ob. *Stems* decumbent, from one to two feet, somewhat branched, smooth, leafy. *Leaves* rough on each side. *Panicle* elongated, often from four to five inches upright : little branches close, inclining to a purple. *Calyx*, valves nearly equal, coloured, nearly double the length of the corolla. *Awn* bristle-like, white, upright, marked with a brown knot towards the middle, double the length of the corolla, and fixed just beneath its middle.

(2) *Without*

(2) *Without Awns.*

A. Panicle, little branches spreading, awnless; *stolonifera*.
Stems creeping: calyx, valves equal, lance-shaped, pubescent.

It is a very common grass in moist meadows, pastures, and on cold stiff arable lands. This grass increases very fast by rooting at each joint, getting to a considerable length, and furnishing amazingly at bottom before it rises for flower. Then it sends forth flowering stems in abundance, which, from their debility, and the want of other grasses as a support, press down on the under foliage which had become so prolific whilst enjoying the air. Thus, in a little time, this under foliage is excluded from air and sun, and, from having been in such perfection and high verdure, shortly after it becomes yellow, and is scalded by the multiplicity and pressure of the flowering stems, there remaining no verdure but that part which appears on the surface. I have remarked, when treating on the *Phleum pratense*, that were this grass cultivated with it, as the same soil and situation agree with both, an advantage might result therefrom. For the *Phleum pratense* being
a strong

a strong grass from the time it begins to spring for flower, it would gradually support the debility of the other, and admit air and sun to the under-foliage, which would preserve an essential part thereof without injury to itself. As the *Agrostis stolonifera* is a grass which is fine both in leaves and stems, it would answer in mixture with, and qualify the coarser *Phleum*. The *Phleum pratense* might also with propriety be cut when the *Agrostis stolonifera* is in perfection, for I conceive it best to cut the *Phleum pratense* before it gets in full perfection, as then it becomes hard and wiry. The *Agrostis stolonifera* is a grass that freely admits of, and will thrive in mixture with most others. It would be a valuable grass to cultivate in worn out bogs, or even bogs not exhausted, if the surface be first skinned and burnt, as it would speedily form a sod and become a desirable pasture. In Mr. J. T. Mackay's catalogue of rare plants, there is a paragraph which mentions the mode of culture, the utility, and produce of this grass in some of the western parts of this island, which I think worthy of insertion, for the benefit of those who perhaps may have and wish to reclaim similar grounds. "Samuel Connys, Esq. has land on the Cunnamara coast, a
great

great deal of which is now in an uncultivated state, being chiefly turf bog. In this state the principal plants that grow upon it are, *Erica vulgaris*, and *Melica cærulea*, a coarse grass that cattle are not fond of. He is reclaiming this by degrees, by the application of sea sand, which is on that part of the coast a mixture of sea shells and granitic particles. He in the first place has the ground made somewhat even, and then the sand laid upon it; sometimes a mixture of sand and sea weed is applied. The first crop he grows is potatoes in beds; the second crop is barley or oats, which are generally very good; and the third year the land produces spontaneously a good crop of hay, chiefly composed of *Agrostis stolonifera*, a number of the plants of which are probably brought with the sand, and in that short space of time overrun the whole surface. Mr. Connys has never observed a plant of it in flower, although he frequently has had several acres of it growing together.

An acre of land thus reclaimed will produce two ton of excellent hay, worth from four to five pounds per ton. *Agrostis stolonifera* is a remarkably sweet and juicy grass, and cattle of every sort are fond of it, when made into hay."

In the interior parts of the country, hay is selected where the greatest quantity of the *Agrostis stolonifera* is, that it may be preserved for making hay water as drink for cows, to increase their milk. It is also given to young calves in mixture with new milk, and considered very nourishing. There is a variety of this grass with silver-striped leaves, which I have met with growing.

P. July. Aug. and part of Sept.

IRISH. { *Taenféin Forín.*
 { *Taenfhér Forín.*

Foraon. Fiorin. Forin.

ENGLISH.—*Creeping Bent-grass. Black Squitch-grass.*

Ob. *Roots* perennial, fibrous, branching much. *Stems* decumbent, branching, leafy, putting forth roots from its numerous joints as they advance, then getting upright. *Leaves* from 1 to 3 inches long, veined, rough on each side, broad in proportion to the length. *Sheath-scale* many cleft. *Panicle* from 3 to 5 inches long, upright, compact: *Branches* from half an inch to an inch long, crowded with florets down to the union with the main stem. *Calyx*, valves equal, bluntish, keeled, inclining to purple, pubescent outside: *Corolla* shorter

shorter than the calyx: *valves* unequal, blunt, awnless.

A. Panicle clumsy, rather spreading: branches, *maritima.* longer ones naked; shorter ones crowded with florets at the base: calyx, inner valve smooth; outer ferrulated upwards.

It generally grows on moist banks along the coast. Banks along the S.W. side of Howth, county of Dublin. On the banks along the coast between Green-castle and Kirkeel, county of Down. This grass is by no means an indifferent one. I have not seen it cultivated in any great quantity, so as to form a just opinion as to its agricultural merit; however upon the small scale in which several of the grasses are cultivated in the Botanic Gardens, this appears not unworthy of notice, as it is as luxuriant there as in its natural soil. On the banks on the sea shore, this grass, from its long stems and abundant foliage, would appear to be extremely productive; and I make no doubt but it might turn out a valuable species, if cultivated in the interior of the country.

P. June. July.

IRISH. { *Taenféen mara.*
 { *Taenshér mara.*

ENGLISH.—*Sea Bent-grass.*

Ob. *Stems* creeping, striking out fibres from the joints, then ascending. *Leaves*, and sheaths, rough. *Panicle* from 3 to 4 inches, compact. *Calyx*, inner valve smooth; outer valve ferrulated towards the top. *Corolla*, outer valve narrowest, and near half as short as the inner.

alba. A. *Panicle* loose: calyx, glumes equal, rough on the keel, awnless: stems creeping.

It grows in bogs, marshes, and wet places. Marshy situations at Balalla, and along the foot of the Dublin mountains, county of Dublin.—Marshy and wet situations about Rabran, Tinure and Mount Oriel, near Collon, county of Louth. As a pasture grass in such situations it is not unprofitable, being abundant in foliage and stems, and endures the severity of winter and drought of summer amazingly. As a meadow grass not worthy of cultivation. Small cattle eat it.

P. July.

IRISH.

IRISH. { *Taenpén bán.*
 { *Taenfher bán.*

ENGLISH.—*White Bent-grass.*

Ob. *Roots* perennial. *Stems* trailing at the base: under ones putting forth fibres from the joints, leafy, smooth. *Leaves* rough. *Sheath* even, with a blunt bifid sheath-scale sometimes appearing rent-like. *Panicle* compact, bearing flowers closely from the base to the top. *Calyx*, valves equal, acute, green, rough on the keel. *Corolla* shorter than the calyx; *valves* unequal, acute. *Anthers*, violet colour.

A. Panicle spreading: branches stradling, hair-like, bare at the base: calyx valves equal: corolla, inner valve blunt, half the size of the outer. *vulgaris.*

Common in dry sandy soils, and on the sides of hills. About Finglas quarries, Feltrum hill, Knockmarron hill, and Howth, county of Dublin. This grass is fine in its leaves, stems, and panicle; it is more desirable as a pasture grass than as a meadow. Its small size, and very slender stems, give us an unfavourable opinion of its worth as a meadow grass. It grows abundantly in sandy fields along the sea shore, and even there has
nothing

nothing to recommend it except the beauty of its appearance, nor do better grasses thrive when in mixture with it. P. July.

IRISH. { *Taenféh coitchion.*
 { *Taensbér coitchion.*

ENGLISH.—*Common Bent-grass.*

Ob. *Roots* fibrous. *Stems* about 1 foot, upright, smooth, striated, leafy. *Leaves* narrow, acute, somewhat rough. *Sheath* very long, with a very short sheath-scale which runs down the sheath, and appearing as if gnawed. *Panicle* upright, spreading, inclining to purple: *branches* hair-like, extending and subdivided by 2 or 3 forked lesser divisions. *Calyx*, valves nearly equal, acute, awnless, purple at the base and round the edges. *Corolla*, outer valve twice the length of the inner, nearly equal to the calyx: inner valve blunt, smooth.

pumila. A. Panicle nearly pointing in one direction, awnless: stems upright, in bundles.

It grows in poor barren grounds. Howth, and the island of Lambay, county of Dublin. This grass, although never rising to any great size, is very prolific, and produces foliage in abundance.

abundance. It is far preferable to the former, as it continues in verdure longer, and is earlier in its spring. It would do well for pasture, but is not adapted for meadow. P. July.

IRISH. { *Taenychēn abhac.*
 { *Taensbér abhac.*

ENGLISH.—*Dwarf Bent-grass.*

Ob. *Roots* many. *Stems* in many bundles, smooth, about two small finger lengths, and furnished with leaves resembling those of the roots. *Sheath* striated, somewhat rolled inwards. *Panicle* very much spreading and somewhat pointing one way. *Florets* coloured, awnless, ending in a small point.

A. Panicle threadshaped, awnless; blossom *minima*.
hairy.

It grows in dry barren places. I have found this grass in the month of September, without a grain of seed in the panicle, on a dry bank, about two miles south of Tuam, county Galway—and in June leafless, and full of seed, along the south side of Mount Oriel; and on the lands of Mullaruagh, near Collon, county Louth. It has also been found, flowering in August, near the summit of

of Lettery mountain, Ballinahinch, Cunnamara.
See Dr. Wade's *Plantæ Rariores*.

A. March. April.

IRISH. { *Taenfhēn nóbeg*.
 { *Taenfhér robbeg*.

ENGLISH.—*Least Bent-grass*.

Ob. *Roots* annual, very slender. *Stems* from 2 to 3 inches, nearly upright, without knots, thread-shaped. *Leaves* mostly from the base, linear, blunt, folded, running down the sheath in a skinny-like substance. *Panicle* very slender, upright, simple, terminating: the flowers pointing one way. *Calyx*, valves equal, keeled, shining, blunt. *Corolla* shorter than the calyx, hairy, veined, gnawed-like at top.

AIRA.

Cal. 2-valved, 2-flowered: without any intervening substance between the florets.

(1) *Flowers awnless*.

aquatica. A. *Panicle* spreading: florets without awns, smooth, longer than the calyx; leaves flat.

It grows generally on the margins of pools,
standing

standing waters, and in muddy streams. In ditches each side of the Royal Canal from the North road to the Observatory—along the ditches from the turnpike to Glasnevin, county of Dublin. Very common in similar situations. This is a very desirable grass, could it bear cultivation out of watery situations, but it will not; for it has repeatedly been tried in the Botanic Gardens, and from the time of its removal, notwithstanding regular watering, declines, and seldom appears in the ensuing season. It produces much foliage from its long stems, which strike out fibres from the joints; and it sends forth flowering stems in abundance. It is much relished by horned cattle and horses; and they often run great risks in quest of it, eating it down even below the surface of the water. I have frequently seen cows and horses wade to a considerable depth in water and mud, feeding with avidity on this grass, and in deep places they would even venture beyond their depth in browsing on it, so attracting is this species to their appetite. Sheep, cows, and horses eat it. P. June. July.

IRISH. { *Gruagfhér uisge.*
Gruagfhér uisge.

ENGLISH.—*Water Hair-grass.*

Ob. *Roots* creeping, with very long white fibres. *Stems* very long, floating when in water, branched: putting forth fibres from the joints of the under branches, leafy, upright at top. *Leaves* flat, smooth. *Sheath scale* slender, white, short, entire. *Panicle* upright, somewhat in whirls: little branches unequal, spreading, smooth, containing many flowers. *Calyx*, valves unequal, inclining to purple: outer one with three nerves at the base. *Corolla*, valves equal, nerved, folded, shining at top, blunt.

eristata. A. *Panicle* spike-like: calyx somewhat hairy, rather 3-flowered, longer than the little fruit-stalks: corolla valves unequal, terminating awn-like.

Plentiful along the banks, the east and south sides of Howth, county Dublin. On ditch banks near Cahir, at the bottom of the Galty mountains, county Tipperary. Mr. J. T. Mackay's Catalogue of rare Plants. This grass is not adapted for meadow, as it is short both in its foliage and stems; it might answer as a pasture grass

grafs on high grounds, intermixed with others, as it is capable of withstanding drought; and it would be acceptable as a variety to some species of cattle in dry seasons, when other herbage is injured by drought and heat in such places.

P. July. Aug.

IRISH. { *Ḡruagḡhēn cínínac.*
{ *Gruagfhér círinach.*

ENGLISH.—*Crested Hair-grafs.*

Ob. *Roots* matted. *Stems* upright, 1 foot, leafy, and curved at the base, smooth and quite straight above. *Leaves* linear, smooth, somewhat rigid, with long sheaths, but short sheath-scales. *Panicle* spike-like, about $2\frac{1}{2}$ inches, upright, close: peduncles branched, pubescent, having each floret sitting, on a very short erect fruit-stalk. *Corolla*, outer valve similar to the calyx: inner valve more slender but something shorter, and both pointed.

(2) *Florets awned.*

A. Panicle large, wide spreading: petals awned *cæspitosa.*
and woolly at the base: awn straight, short:
leaves flat.

It generally grows in moist meadows and
woods.

woods. Howth and Dublin mountains along the vallies, and along the banks of the canal from the Cross-guns to Castleknock—low meadows at Scribblestown, Santrywood, and about Feltrum, county of Dublin. This is a very coarse grass, and the roughest of all the grasses which grow in pasture or meadow grounds, and therefore very unacceptable to cattle, for in general they do not touch it unless forced by hunger. It is very abundant in leaves, but not in flowering stems. It often occupies much ground, and is very apt to grow in tufts, occasioning irregularities on the surface of meadows, which appear very disagreeable, and it often occupies much ground which might be made to produce better grasses. Farmers' boys are very often annoyed when going barefooted through ground this grass inhabits, as the sharp edges of its leaves coming across the bare legs often leave them as if scarified, and by drawing the leaves through the hand are very apt to cut, and that imperceptibly. It is a grass no way desirable either for meadow or pasture. Cows, goats and swine eat it. Horses are not fond of it. P. July.

IRISH.

IRISH. *Snaifeen sgrathagach.*
Gruagfher sgrathagach.

ENGLISH.—*Turfey Hair-grass. Hassocks. Rough-caps. Bulls-faces.*

Ob. *Roots* fibrous, closely matted. *Stems* 3 feet, upright, even, leafy, two-knotted. *Leaves* flat, narrow-pointed, stiff, nerved; underneath even, nerved and rough above; *root-leaves* widely spreading, sheathing. *Sheath-scale* elongated, acute, bifid. *Panicle* before expansion drooping and pointing one way, but when in flower widely spreading, very much branched, and of a beautiful purple silk appearance. *Calyx*, valves somewhat equal, rough. *Corolla*, valves smooth, villous at the base: outer one widest, gnawed-like at top. *Awns* short, seldom longer than the glumes. There is a variety of this grass with scarce any awns, which grows in the woods about Collon, on the improvements of the Right Hon. John Foster.

A. *Panicle* stradling, three-forked: fruit-stalks *flexuosa*. zigzag: leaves bristle-shaped: stems almost naked: awns knee-bent.

It grows in heaths, woods, on rocky and barren places. Howth, Dublin mountains, and mountains

mountains of Wicklow. Mount Oriel and Windmill-hill near Collon, county of Louth: as also on the Saddle and Trumpet mountains, and mountains of Carlingford in said county.

As a meadow grass, this species could not attract the notice of the farmer, for it delights on mountain grounds on the surface of rocks, where it makes a very good appearance, but when taken from such places and planted on levels or low grounds, it makes but very little progress, as I have experienced in the Botanic Garden. In mountain grounds it is no unprofitable grass, as it will grow on rocks and declivities, where other grasses would fail; and in such situations I have frequently seen it eaten down by cattle, which were chiefly sheep; and I make no doubt but it is a species they relish much. Sheep, horses, and cows eat it. P. July.

IRISH. { *Gruag fheir snímáin.*
 { *Gruag fheir snímhain.*

ENGLISH.—*Zigzag Hair-grass.*

Ob. *Roots* fibrous. *Stems* from 1 to 1½ feet, almost naked, upright, smooth, with one knot towards the base. *Leaves* bristle-shaped, wide-spreading, sheathing at the base, with a short blunt

blunt bifid sheath-scale. *Panicle* 3-forked, spreading, few-flowered; *branches* rough, changing their direction in a curve; *flowers* hairy at the base, placed on alternate upright fruit-stalks. *Glumes*, all nearly of a length, gnawed-like at top: inner valve of the corolla narrowest, and hairy at the base. *Awn* knee-bent, twisted, half as long again as the blossom, and placed near its base.

A. Panicle spike-like: florets sitting, awned at *præcox*. the base: leaves bristle-like: sheaths angular, furrowed.

This delicate grass is to be met with on dry commons, and on bare rocky grounds. On dry heaths and rocks, at the foot of the Dublin mountains, Howth, Lambay, and Ireland's-eye, county of Dublin—on the rocks about Culfuair, Tinure, and Monesterboyce, county of Louth. It is a handsome delicate low grass, of little consequence to the farmer, except that early in the spring it may cover a part of his grounds which abounds with rocks, and may be acceptable to sheep, or other of his small cattle, at that season.

A. May.

IRISH.

IRISH. { *Grúagfheir moch.*
 { *Gruagfher moch.*

ENGLISH.—*Early Hair-grass.*

Ob. *Roots* fibrous, small. *Stems* upright, from 2 to 3 inches, and in fertile grounds often 6 inches high. *Leaves* bristle-shaped: those from the root soon withering: those on the stems with long sheaths. *Sheaths* furrowed, with blunt sheath-scales. *Florets* sitting. *Calyx*, valves nearly equal, naked at the base: outer valve with a bristle-like knee-bent awn, nearly twice the length of the calyx, placed on the back a little below the middle.

caryophyllea.

A. Panicle spreading: florets distant, sitting, awned; leaves bristle-like.

This grass grows in the same situations with the former. Its only superiority over the *Aira præcox* is, that it is nearly three times its size. It is, however, from its silvery appearance, no unsightly grass amongst a collection.

A. June.

IRISH.

IRISH. { *Ḡruagfhér airgid.*
Ḡruagfhér airgid.

ENGLISH.—*Silvery Hair-grass.*

Ob. *Roots* small, fibrous. *Stems* from 4 to 12 inches, branched at the base, smooth. *Leaves* bristle-shaped; those at the base soon decaying, but not falling off: those on the stems with long sheaths and spear-shaped elongated sheath-scales. *Panicle* terminating, dividing by threes and widely spreading: *florets* fitting, shorter than the calyx. *Corolla*, valves shining at top; outer valve with a knee-bent bristle-like awn, placed on the back a little below its middle, and which is longer than the calyx.

MELICA.

Cal. 2-valved, 2-flowered, with a little substance on a pedicle betwixt the florets.

M. *Panicle* thinly set: calyx 2-flowered: one *uniflora.* floret hermaphrodite, the other neuter.

It grows in woods and shady glens. Abundantly in Luttrell's-town wood, county of Dublin.

About Cong, at the subterraneous river, county of Galway—along a glen between Ballyleddy and Newtown-Kennedy, county of Down. Shady woods and mountains about Knappen, Glenarm, and low glens, county of Antrim. In woods and shady glens this grass furnishes much leaves, and may be acceptable to cattle which retire to shade in summer during the sun's meridian each day, but as a pasture or meadow grass of no great value. P. June. July.

IRISH. { *Meloiḡfēr aonbláta.*
 { *Meloigfhér aonbhlátha.*

ENGLISH.—*One-flowered Melic-grass.*

Ob. *Roots* fibrous. *Stems* from 1 to 1½ feet. *Leaves* flat, rough underneath and on their edges. *Sheaths* about half the length of the leaves, with blunt sheath-scales which assume different forms. *Panicle* upright, few flowered; little fruit-stalks pointing one way; lower ones in pairs. *Calyx* purple; *valves* nearly equal, smooth, awnless, nerved, containing one fertile flower.

carulea. M. Panicle close: flowers upright, cylindrical.

Common in boggy meadows and pastures. This grass is common in most bogs, but the harshness of

of its leaves and stems, which are not very productive, renders it of very little consequence to the farmer. It may however contribute with other grasses to form a cover in bogs, and in such situations is not without utility. A variety (*panicula pallida*) was observed growing in a bog near the house of Ralph Marshall, Esq. at Calnaferry, county of Kerry, and in various other parts of that county. Mr. J. T. Mackay's Catalogue of rare Plants. Horses, sheep, and goats eat it. P. Aug.

IRISH. { *me1018fēn corcuin*.
 { *Meloigfhér corcuir*.

ENGLISH.—*Purple Melic-grass*.

Ob. *Roots* bulbous, with thick twisted fibres. *Stems* from 1 to 1½ feet, upright, stiff, cylindrical, smooth, leafy, with one knot towards the base, but naked at top. *Leaves* stiff, acuminate, lightly rough, with a few very short hairs on the sheath-scale. *Panicle* upright, branched, close: flowers upright, cylindrical. *Calyx* 3-flowered, sometimes four, purple: the two under florets fertile. A pedicle knobbed at the end rises from betwixt the florets. *Anthers* dark purple.

POA.

Cal. 2-valved, many-flowered: *spikets* egg-shaped: *valves* skinny at the edge, rather acute.

aquatica. P. Panicle upright, spreading: *spikets* strap-shaped, 6-flowered: leaves sword-shaped.

It grows in marshes, and along the banks of rivers. Along the edges of the Grand canal from James's-street to Ringsend, and from James's-street to Salens, county of Dublin. This is a very good grass, and although very strong looking, is very tender and soft in its stems and foliage, sending forth both in abundance. There are many of the stems which do not flower, but are plentifully clad with leaves, which renders it a very valuable grass for pasture. It may be imagined from its natural places of growth in waters, that it would not bear cultivation in other situations. But this is not the case, for in different situations where it is cultivated in the Botanic Gardens it thrives amazingly, notwithstanding the soil is naturally a dry one. It is a grass that encreases very fast by its roots, although not creeping, and would be an excellent one

one for moist or low grounds; and where the ground is inclined to be marshy it would be a valuable pasture, as cattle are remarkably attached to it, particularly horses and cows. Along the sides of the Grand canal, where this grass grows, it is generally eat down to the surface of the water within the reach of cattle. It is also a very useful grass to sow upon the banks of rivers, as it would prevent them from being worn away by the rapidity of the water. Horses, cows and sheep are remarkably fond of it. P. July.

IRISH. { *Cuise cuiscamust.*
 { *Cuise cuilcambuil.*

ENGLISH. — *Reed-like Meadow-grass. Water Meadow-grass.*

Ob. *Roots* fibrous. *Stems* many, from 3 or 4 to 6 feet high, 2-edged, leafy, knotted: knots towards the base sending forth fibres. *Leaves* broad, sword-shaped, acute, upright, keeled, rough on the edges and keel. *Sheath* scored, smooth, with a very blunt sheath-scale abruptly terminating awn-like. *Panicle* upright, branching, somewhat spreading. *Calyx*, glumes nearly equal, whitish, shining, containing from 5 to 6 florets.

florets. *Corolla*, outer valve with 7 nerves: inner one notched at the end.

alpina. P. Panicle widely spreading, very much branched: spikets 6-flowered, heart-shaped: under sheath-scales very blunt.

It grows on and near the summits of high mountains. Found on the summit of Brandon, near the well, on the rock, thinly covered with earth—also on the summit of Cruach Phadruic, county of Mayo—likewise on Benbulbin, and other mountains, near Sligo. Mr. J. T. Mackay's Catalogue of rare plants. This grass, although not high, sends forth abundance of side shoots and leaves. It may answer well enough as a pasture grass on the summits of mountains, where there is but a thin cover, and furnish small cattle with nourishment in dry seasons, when the herbage nearly perishes on such situations. From its being a very close grass in its leaves, and matted like at the base, it retains moisture, and continues in verdure where others perish for want of such convenience. As a meadow grass it is of no value. P. June. July.

IRISH.

IRISH. { *Cuise aisp.*
 { *Cuise ailp.*

ENGLISH.—*Alpine Meadow-grass.*

Ob. *Roots* fibrous. *Stems* from 7 to 10 inches, somewhat ascending, cylindrical, two-knotted, naked above. *Leaves*, those from the root many, spreading, bluntish at top, but ending in a sudden point: those on the stem 2, very short. *Sheath* very long, with a spear-shaped acute sheath-scale on the upper leaves, but very short and round on the lower. *Panicle* short, spreading, nearly egg-shaped. *Calyx*, valves nearly equal, egg-shaped, acute, rough on the keel, somewhat hooked at top. *Florets* egg-shaped, somewhat acute, often silky and skinny on the edges: inner valve notched, ciliated.

P. Panicle spreading: spikets 3-flowered, woolly *trivialis.*
 at the base: stems upright, cylindrical, rough:
 sheath-scale tapering to a point: roots fibrous.

Common every where, particularly in moist and shady situations. This I consider as a good meadow grass when in mixture with others, as it furnishes well both in leaves and stems. It is early in its foliage, and continues leafing and flowering successively

ſucceſſively for three months. Dr. Richardſon, in his valuable treatiſe on indigenous graſſes, obſerves, that it diſappeared ſoonest from its plot: his remarks indeed are juſt, and ſhew his treatiſe to be a work of experience, for when ſown ſeparate, in an open ſituation, it makes but an inſignificant appearance, and rather ſeems to decline each year, but growing promiſcuouſly with any other graſſes, it appears as luxuriant in proportion as any. When firſt ſpringing its ſtems grow proſtrate, rooting at the under joints, and being ſhaded and kept moiſt by others it is ſtrengthened, and ſends up its flowering ſtems in greater perfection. A ſquare plot of this graſs, which is cultivated in the Botanic gardens, in the farmer's diviſion, to the obſerver of graſſes would give but a very indifferent idea of its worth. But were he to look at other contiguous plots, where this graſs had got in, he would be led to form a more favourable opinion of it. Here would he ſee, and might contrast, the difference between this graſs ſeparate, and in mixture. It is a graſs that does not thrive well without ſhade, is well adapted for young plantations, and in ſuch ſituations becomes valuable. On the eſtate of the Right Hon. John
Foster,

Foster, at Collon, where planting is constantly going on, this grass might be seen in great perfection. Sheep, goats, cows, horses and swine eat it. P. June. Sept.

IRISH. { *Cuise garbhgasaé.*
 { *Cuise garbhghasach.*

ENGLISH.—*Rough-stalked Meadow-grass. Fold-grass. Fowl-grass. Bird-grass.*

Ob. *Roots* fibrous. *Stems* decumbent at the base, then rising upright, 2 feet or more, cylindrical, roughish, leafy, often inclining to purple. *Leaves* nearly upright, weak, somewhat acute, keeled, rough underneath and on the edges. *Sheath* almost the length of the leaves, striated, somewhat pressed, rough, with an elongated sheath-scale ending acute. *Panicle* upright, lengthened, terminating, acute, very much branched, widely spreading, and somewhat rough. *Calyx*, valves equal, rugged on the back: outer valve linear-lance-shaped; pointed: inner one with three nerves. *Corolla*, valves somewhat blunt, 5-nerved, skinny at the top, with a number of fine woolly hairs at the base.

angustifolia. P. Panicle spreading: spikets 4-flowered, pubescent: stems upright, cylindrical: root-leaves slender, edges rolled inwards.

It grows in meadows and on dry banks. This is a good meadow and pasture grass; it furnishes much leaves from the roots, which are numerous and long; its leaves are not so broad as the next species, but the deficiency is supplied by number and length, it also continues longer in verdure, is somewhat taller, and sends forth more flowering stems. It is not a bad grass as a mixture, as it will thrive in most soils and situations. Sheep, goats, cows and horses eat it.

P. June.

IRISH. { *Cuise cumangduillec.*
 { *Cuise cumhangdhuillech.*

ENGLISH.—*Narrow-leaved Meadow-grass.*

Ob. *Roots* creeping, sending up suckers. *Stems* from 1½ to 2 feet or more, upright, knotted, smooth, shining. *Leaves* narrow, acute, edges rolled inwards, resembling those of *Festuca duriuscula*. *Panicle* somewhat spreading, but pointing one way, somewhat drooping before expansion for flower, rising rather upright in

in its floral state, and again assuming a drooping appearance in its seminal. *Calyx*, valves nearly equal, keeled, with a ridge of transparent teeth on the keel. *Corolla*, valves nearly equal, with entangled wool-like hairs at the base.

P. Panicle spreading: spikes 5-flowered, smooth: *pratensis*.
stems cylindrical, upright, smooth: sheath-scale short, blunt: roots creeping.

Common in meadows, dry banks, and on old walls. This is a very good grass when in mixture, both for meadow and pasture, but far preferable for pasture, from the numerous leaves it sends forth from its roots, and its furnishing after-grass in quantity. It is not very abundant in its stems, but nevertheless is no way disadvantageous in meadows; for the stems being pretty stout, and not very tall, support other weaker grasses which surmount them. It is a grass which will grow in almost any soil, and possesses the good quality of withstanding the drought of summer. If cultivated separately for meadows, it is not a desirable grass. Cows, horses, goats, sheep and swine eat it. P. June.

IRISH. { *Cuise mingeasac.*
 { *Cuise minghasach.*

ENGLISH.—*Smooth-stalked Meadow-grass.*

Ob. *Roots* creeping, sending up suckers. *Stems* upright, from 1 to 2 feet, cylindrical, striated, smooth, leafy. *Leaves* spreading, bluntish, keeled, smooth, sometimes glaucous. *Sheath* the length of the leaves, striated, smooth, with a short blunt sheath-scale. *Panicle* spreading, upright, ending rather blunt. *Calyx*, valves acute, somewhat unequal, three-nerved, with a rugged prominence on the back. *Corolla*, valves somewhat blunt, acutely five-nerved, skinny at top, hunched and rough on the back, with a number of very long villous hairs at the base.

annua. P. Panicle triangular, spreading horizontally: spikets mostly 4-flowered, blunt: florets pointing one way: stems slanting, flattened.

Very common in pastures, road sides, paths, gravel walks, and borders of fields. Although a small grass, it is not unprofitable to the farmer; for on many parts of his grounds liable to waste, this dwarf species furnishes a delicious, and sometimes a welcome bit, to many species of his cattle, nay of his fowl; and it possesses these excellent properties, of growing, flowering and feeding almost

almost throughout the year, and is browsed on by his cattle and fowl at a season when more lofty grasses lie in a state of inaction. It is a sweet and fine grass, and by no means unacceptable in pastures. As a meadow-grass, of no value. Sheep, goats, cows, horses and swine eat it.

A. Flowering all summer.

IRISH. { *Cuise blidainta.*
 { *Cuise blidbainta.*

ENGLISH.—*Annual Meadow-grass. Suffolk-grass.*

Ob. *Roots* fibrous. *Stems* many, from 4 to 12 inches, flatted, leafy, smooth. *Leaves* spreading, flat, linear, pointed, rough on the edges, very often with transverse wrinkles on some part of them. *Sheath* elongated, flatted, smooth, streaked, pale, with a short gnawed-like sheath-scale. *Panicle* triangular, upright, inclining one side, thinly branched. *Calyx*, valves lance-shaped, acute, keeled, unequal. *Corolla*, valves oval-lance-shaped, blunt, five-nerved, hunched, with a skinny-like substance on the edges, and without any woolly hairs or down at their base as in the *Poa trivialis*.

P. Panicle close, nearly pointing one way: spikets *maritima*.
many-flowered, nearly columnar: florets distant:
stems ascending.

It

It generally grows along the sea coast in salt marshes. This grass is but of little worth in an agricultural point of view; for in its natural situation of growth the appearance of its foliage or stems is not such as could recommend it to the notice of the farmer, nor does it thrive well out of maritime situations. P. June. July.

IRISH. { *Cuise muruisc.*
 { *Cuise muruisc.*

ENGLISH.—*Sea, or Salt-marsh Meadow-grass.*

Ob. *Roots* creeping. *Stems* decumbent at the base, about 1 foot, very smooth, leafy. *Leaves*, edges rolled inwards, glaucous, acute. *Sheath* long, with a blunt sheath-scale, which is oftentimes acute. *Panicle* upright, straight; branches for the most part in pairs, rough, spreading before flower, afterwards becoming erect. *Spikets* linear, smooth, about five-flowered, inclining to purple. *Calyx*, valves unequal, somewhat acute: outer one with three nerves. *Corolla*, inner valve rough on the margin, bifid at top.

rigida. P. Panicle spear-shaped, somewhat branched: little branches alternate, pointing one way.

It grows on dry sandy or stony places, walls and

and roofs. It is neither useful in meadows, pastures or waste places, unless to small birds for its seed. A. July.

IRISH. { *Cuisse cruudata*.
 { *Cuisse cruudbata*.

ENGLISH.—*Stiff, or Hard Meadow-grass.*

Ob. *Roots* fibrous. *Stems* many, upright, from 3 to 6 inches, stiff, very smooth. *Leaves* acute, slender, rolled in at the edges, very even underneath, rough above. *Sheath-scale* blunt, finely cut. *Panicle* spear-shaped, stiff, decompound: little branches alternate; little spikes on inflexible fruit-stalks which are shorter than the spikes they support, strap-shaped, containing about 8 florets in each. *Calyx*, valves nearly equal, keeled, acute. *Corolla*, valves somewhat acute, skinny at top: inner valve ciliated.

P. Panicle close, pointing one way: stems slant-*compressa*.
ing, flattened: roots creeping.

It grows on walls, house tops, and on other very dry places. On walls and dry banks between Galway and Tuam—about Tighmhuillin and Tullyallen, county of Louth. Although this grass encreases fast by its roots, and sends forth

forth a tolerable quantity of foliage, yet its leaves are but short, as likewise its stems. I don't consider it as a grass much worthy the notice of the farmer, neither is it one to be recommended for meadows or pastures, as it rather inclines to grow upon old walls and such dry situations, and even there it has but an unsightly appearance. Sheep, goats, cows, and horses eat it. P. June. July.

IRISH. { *Cuise faisgemust.*
 { *Cuise faisgembuil.*

ENGLISH.—*Compressed Meadow-grass.*

Ob. *Roots* creeping. *Stems* trailing, then ascending, from 8 to 12 inches, knotted, smooth, leafy, very much flattened. *Leaves* flat, acute, smooth, inclining to a sea-green colour. *Sheaths* the length of the leaves, two-edged, streaked, with short blunt sheath-scales. *Panicle* close, nearly inclining one way, bluntish; little branches angular, rough, somewhat weaved, spreading before flower, afterwards becoming close. *Calyx*, valves nearly equal, egg-shaped, nerved, containing from 4 to 9 florets. *Corolla*, valves egg-shaped, three-nerved, skinny at top, and of a purplish colour towards the base.

P. Panicle

P. Panicle slender, tapering: spikets mostly two-*nemoralis.*
flowered, rough, pointed: stems and leaves
slender: sheath-scale very short, notched.

It grows in woods and shady places. In Luttrell's-town wood, county of Dublin. In the woods about Rostrever, and the wood on the side of Knockcree, county of Down—woody mountains about Knappen, county of Antrim. Either wild or cultivated, in both which states I have seen it grow, I consider it as a good and beneficial grass; and, although slender in its leaves and stems, it is pretty tall, and produces both in great plenty. From some observations I have made in the Botanic gardens, in the farmer's division, where there are plots 20 feet square, in which are cultivated several of the grasses separately, I have remarked this grass to hold its plot, and without any way appearing to decline during the successive years it has occupied it, whilst others from their declining state were obliged to be renewed. It also produces a second crop not much inferior to the first; a property which makes it the more valuable as an after-grass. If an equal quantity of this grass and of the *Avena flavescens* were mixed with double the
I quantity

quantity of the *Festuca pratensis*, I should not be at all surpris'd to see a very fine fleece produced therefrom. For as I have already remarked when speaking of other grasses, the *Festuca pratensis* being a pretty stout grass, and somewhat coarse, it would encourage and support these other two, which are finer in leaves and stems, and more productive; and the latter would answer well, in the above proportion, to qualify the coarser *Festuca*. The *P. nemoralis* thrives well in the different situations where it is placed in the Gardens.

P. June. August.

IRISH. { Cuise coiltemhuil.
 { Cuise coiltemhuil.

ENGLISH.—*Wood Meadow-grass.*

Ob. *Roots* fibrous. *Stems* from $1\frac{1}{2}$ to 2 feet or more, upright, slender, somewhat flat, smooth, leafy. *Leaves* mostly from the root, narrow, tapering, bristle-shaped, acute; those on the stem rough on each side and on the margin. *Sheath* not so long as the leaves, compressed, somewhat smooth, with a very short sheath-scale notched at the end. *Panicle* tapering, nearly upright, loose; *branches* slender, in semiwhirls, angulated, rough, often waved, and more or less branched. *Calyx*, valves

valves nearly equal, very little shorter than the spiket, lance-shaped, 3-nerved, ferrulated, and containing from 3 to 5 florets. *Corolla*, valves lance-shaped, acute; inner valve keeled, and somewhat pubescent on the margin.

P. Panicle with subdivided branches: lower branches pointing downwards; spikets 5-flowered; florets distant, blunt. *distant.*

It grows in fields and among rubbish along the sea shore. Along the way side from Ballyboughbridge to Clontarf—Lots at the N. Wall, and between Dublin and Irishtown, county of Dublin. I know of no advantage which could be derived from this species in an agricultural point of view; for from what I could observe by it in the Botanic gardens, it does not thrive well out of maritime situations. P. June. July.

IRISH. { *Cuise sgaoiteblatac.*
 { *Cuise sgaoitebhlathach.*

ENGLISH.—*Loose-flowered Meadow grass.*

Ob. *Roots* fibrous. *Stems* bent at the lower joints, nearly 1 foot, cylindrical, leafy, smooth. *Leaves* somewhat acute, smooth, of a sea-green colour, flat; those from the roots somewhat rolled

inwards. *Sheath-scale* blunt, notched at top. *Panicle* upright; *branches* distant in semiwhirls, somewhat waved, of various lengths: the under ones pointing downwards. *Calyx*, valves unequal, keeled, small, blunt, skinny on the edges. *Florets* distant, nearly cylindrical, very blunt: inner valve notched and rough on the edge.

BRIZA.

Cal. 2-valved, many-flowered. *Spikets*, 2-rowed.

Blossom, 2-valves, bellying out: valves heart-shaped, blunt; the inner minute. *Seed*, depressed, adhering to the corolla.

media. B. *Spikets* egg-shaped, 7-flowered: calyx shorter than the florets: sheath-scale blunt, very short.

Common on sides of hills, in pastures, and in meadows. This grass is of no great worth, either as a pasture, or for meadows. It is not very prolific in stems, neither are they very high: the leaves are but short, nor do they hold their verdure long; and, in short, it has very little to recommend

commend it except the beauty of its panicle.
Cows, sheep and goats eat it. P. July.

IRISH. { *Luaſca tſen me don.*
 { *Luaſcadhbher medhon.*

ENGLISH.—*Middle Quaking-grass. Cow-quakes.*
Ladies-hair.

Ob. *Roots* fibrous. *Stems* 1 foot or more,
upright, leafy, very smooth. *Leaves* nearly up-
right, acute, flat, somewhat rough. *Sheath* long,
striated, smooth, with a very short blunt sheath-
scale. *Panicle*, widely spreading, many-flowered:
little branches brownish. *Spikets* drooping,
quaking, egg-shaped, or nearly heart-shaped,
smooth, shining, containing 7, sometimes 9 florets.
Calyx, valves nearly equal, hollow, blunt, skinny
at the edges, and somewhat shorter than the
floret. *Corolla*, valves similar to the calyx;
outer one notched.

DACTYLIS.

Cal. 2-valved, flattened: one valve larger, keeled.

D. Panicle crowded, pointing one way: calyx *glomerata.*
4-flowered.

Very

Very common in meadows and shady places. This is a very productive grass both in leaves and stems; it will thrive almost in any soil or situation; and, as I have experienced in the Botanic gardens, in the farmer's division, where a plot is allotted to this grass, it retains its ground without appearing any way to decline, and produces a heavy fleece; it also produces aftergrasses in abundance. It is a coarse grass, and from the quantity of seed it bears must be very nutritious. It has the strongest powers of vegetation of any grass I know; and may be easily pointed out a little time after cutting in any meadow, being the first visible after raking. Other grasses do not seem to thrive well alongside of it, being overshaded and scalded by its numerous and long foliage, and the ground is generally found bare for an inch or more round its base. If cultivated separately, it would produce an abundant crop; and, although a coarse grass, a method might be taken to meliorate and make it more palatable to cattle, (i. e.) by having it judiciously intermixed in the rick at the time of drawing home to the farm-yard. It is a grass that would answer well in young shady plantations, as it is not injured by shade; and in such situations, where other grasses would

would not thrive, it would be well worth cultivation. I have often heard it said, that cattle do not eat this grass when in a recent state; but this opinion seems to have originated from seeing it in tufts in meadows some time after the cattle are taken off for the season. However, I can say from experience, that cattle do eat it in a recent state, and that with avidity. There are grounds adjoining the south and west sides of the Botanic gardens, which are now, and have been under meadow before the formation of the Gardens. These meadows abound with *Dactylis glomerata*: the aftergrass is generally set to dairymen, and I have frequently stood a considerable time to observe whether cattle refused the *Dactylis* or not, but I never found that they had any objection to it; and, in the course of time, the entire of the grasses being eaten to a level, is a clear demonstration that they do not refuse it. The reason of this grass appearing in tufts is, when cattle eat the entire pasture or aftergrass bare, they are generally removed to another field; and as the *Dactylis glomerata* possesses the quickest powers of vegetation of any other grass, it very soon surmounts all the rest, and being of a strong luxuriant nature appears in tufts, which occasions
people

people not acquainted with this circumstance to imagine that cattle leave it untouched. Horses, sheep and goats eat it. Cows it is said are not fond of it. P. June. July.

IRISH. { *Cailechosfēr coitchion.*
 { *Cailechosfēr coitchion.*

ENGLISH.—*Common Cock's-foot-grass.*

Ob. *Roots* fibrous. *Stems* upright, 3 feet, cylindrical, naked above, rough. *Leaves* linear, acute, spreading, dark green, rough on the edges. *Sheath* striated, flatted, rough, with a jagged elongated sheath-scale. *Panicle*, branches alternate; little branches distant, very rough, stiff, decompound. *Spikets* in little tufts, pointing one way, rough. *Calyx*, valves very unequal, keeled, pointed; outer one 3-nerved, ciliated on the keels; inner one skinny-like. *Florets* 3 or 4, seldom single, larger than the calyx, ciliated tooth-like on the keel; inner valve bifid, ciliated. *Anthems* purple, standing out, trembling.

CYNOSURUS.

Cal. 2-valved, many-flowered, placed one side on a peculiar leafy receptacle.

C. Floral leaves with winged clefts: spike simple, *cristatus*.
semicylindrical, tapering.

Common in dry pastures. The leaves of this grass are very short, the stems hard and tough, and not very high; and as a meadow grass of no utility. As the leaves are pretty fine, abundant, and close, it would answer near the summits and on sides of hilly grounds, as a pasture for sheep; for in such places it is most frequently met with, and particularly on those parts which are stocked by that species of cattle. The stems being hard and wiry, small cattle do not like it; and on this account it is frequently conspicuous in pastures, being left standing, whilst its leaves, and also the stems and leaves of other herbage around it, are eaten closely down. By these means its seed is preserved, and falls at a proper season. This I look upon to be the cause of the predominance of this grass in sheep-walks and pastures. Sheep eat the leaves, but not the stems.

A. July. August.

K

IRISH.

IRISH. { *Trathnífhér círinach.*
Trathnífhér círinach.

Cuifhog.

ENGLISH.——*Crested Dog's-tail-grass. Windle-straws.*

Ob. *Roots* fibrous. *Stems* upright, straight, 1 foot, very smooth, naked at top. *Leaves* linear, acute. *Sheath* striated, very smooth, with a short blunt gnawed-like sheath-scale. *Spike* simple, linear, upright, blunt, with all the florets pointing one way.

FESTUCA.

Cal. 2-valved: *spikets* oblong, roundish. *Husks* tapering to a point. *Panicles* pointing one way.

bromoides. F. Panicle pointing one way: spikets upright, smooth: calyx valves, one entire, the other tapering to an awnlike point: leaves bristle-shaped, shorter than the sheath.

It grows in dry sandy places. Way sides about Dundrum, county of Dublin—high grounds
 above

above Bray, county of Wicklow. A grass of little or no consequence to the farmer, as being profitable neither for meadow nor pasture. It would however cause a verdure on a thin gravelly soil, where others would not thrive.

A. May. June.

IRISH. { *Fescufēn aimrid*.
{ *Fescufhér aimrid*.

ENGLISH.—*Barren Fescue-grass*.

Ob. *Roots* fibrous. *Stems* many, from 6 inches to nearly 1 foot, upright, very smooth, leafy towards the base, with from 3 to 4 joints or knots. *Leaves* pale green, upright, bristle-shaped, acute, smooth, short. *Sheath* longer than the leaves, somewhat bellying out, furrowed, smooth, with a short sheath-scale. *Panicle* upright, from 1 to 2 inches in length, pointing one way. *Spikets* 6-flowered, upright, smooth. *Calyx*, valves acute, smooth; outer valve very narrow, almost bristle-shaped: inner valve much longer, and nearly three times as broad as the other. *Corolla*, inner valve somewhat acute, pubescent on the edge. *Awn*, straight, twice the length of the blossom or more.

ovina. F. Panicle compact, pointing one way, awned: stems 4-cornered, almost naked; leaves bristle-shaped.

Common on dry hills and mountains. As a meadow grass, it is of no consequence to the farmer; for unless in sandy clayey soils it makes but little progress, and even in such is not worthy of cultivation for meadow. Neither is it valuable to the grazier on any part of his grounds, unless dry hills and sides of mountains; and in such places this grass is valuable as to pasture, it being the grass preferred by sheep above all others. In a plot allotted to this grass in the Botanic gardens, in the farmer's division, it appears very luxuriant; and by a comparison here, and in its wild situation, they would appear not the same. The plot has a northern aspect, and is a clayey gravelly soil. Although a small grass, it is succulent, and continues in verdure during winter and spring, affording nourishment at a season of the year when others are frost-bitten and disfigured by inclemency of weather, holding itself thus until the recovery of others to succeed it. There is a small island off Ballycastle, in the county of Antrim, which abounds with this grass; and I have

have been informed, that lean meagre sheep are sent there to recover and fatten. It is also remarked, that the mutton fed on this island is superior in flavour to any other in that country: it is likewise ascertained, that the tallow produced from the feeding here, incorporated with one-third of Russian, is far superior to the Irish or Russian tallow separately. Sheep, goats, cows and horses eat it. P. June. July.

IRISH. { *Fescufēn caoraic.*
 { *Fescufhér caorach.*

ENGLISH.—*Sheep's Fescue-grass.*

Ob. *Roots* fibrous, matted. *Stems* from 6 to 8 inches, upright, slender, somewhat rigid, smooth, leafy at the base, four-cornered toward the top. *Leaves* varying in length and direction, very slender, bristle-like but angular, acute, often a sea green colour. *Sheath* smooth, with a very short sheath-scale. *Spikets* upright, oval-lance-shaped, smooth. *Calyx*, valves unequal, linear-lance-shaped, pointed, keeled, smooth, containing from 4 to 5 flowers. *Corolla*, inner valve awnless, somewhat acute, concave, smooth on the edges.

F. Panicle

vivipara. F. Panicle pointing one way, compact: florets compressed, keeled: calyx somewhat pubescent: stems four-cornered: leaves bristle-shaped, smooth.

It grows on and near the summits of high mountains. Carlingford mountains, county of Louth—Mourne mountains, county of Down. Mangerton and Purple mountains, Killarney. Doctor Wade's *Plantæ Rariores*. Plentiful on several of the Dublin mountains, Doctor Stokes, and on many of the high mountains in the counties of Kerry and Clare, Mr. J. T. Mackay's *Catalogue of rare Plants*. In a state of cultivation, as also in its wild situations, this grass appears more luxuriant in leaves and stems than the former. It is no unprofitable grass on the summits of mountains, as it possesses the good quality of continuing in verdure during the winter, being very acceptable to those species of cattle which easily ascend such places. On Mourne mountains I have seen it eaten pretty close, but sheep were the chief inhabitants. It is similar to the former, but may be readily distinguished when in fructification, by the appearance of young plants growing on the panicle resembling seedlings. It continues
viviparous

viviparous in the Botanic gardens since first introduced.
P. June. July.

IRISH. { *Fescuifén beothuismighač.*
{ *Fescufhér beothuismighthach.*

ENGLISH.—*Viviparous Fescue-grass.*

F. Panicle pointing one way, rough: spikets *rubra.*
6-flowered, awned: floret at the end awnless:
stems semicylindrical.

It grows on mountains and mountain pastures, and on high banks along the sea coast. Below Killincarick on high banks along the coast, county of Wicklow—at Roche's-town, on banks along the wall hard by the shore, county of Dublin—on the east side of Carlingford mountains next the sea, county of Louth. In dry sandy pastures, particularly at an old building called Warren-house, between Clontarf and Howth. Doctor Wade's Fl. Dub. Plentiful on the sea shores in many places of the county of Dublin, and not uncommon on the southern coast. Mr. J. T. Mackay's Catalogue of rare Plants. This grass sends forth a great quantity of leaves, that get to a considerable length and become much entangled, but it produces few flowering stems. So closely

closely matted are the leaves, as also the roots, that it is with difficulty they are cut through with the spade. In a square plot in the Botanic gardens, in the alphabetical arrangement of the Gramina vera, or true grass division, where this grass is cultivated, it has no unsightly appearance in foliage. As a pasture grass it may not be unacceptable, as it vegetates speedily after being cut, and holds in verdure during the winter. As a meadow grass not desirable; for so matted are the roots it is with difficulty any other could grow amongst it.

P. June. July.

P. June. July.

IRISH. { Fescufēn cruán.
Fescufhér cruán.

ENGLISH.—*Red Fescue-grass.*

Ob. *Roots* creeping, very long. *Stems* 1 foot, decumbent, leafy at the base, very smooth, striated. *Leaves* linear, rolled inwards, somewhat sharp pointed, smooth underneath, furrowed above, pubescent. *Sheaths* furrowed: those on the stem very long, smooth; those from the root short, pubescent. *Sheath-scale* very short, gnawed-like. *Panicle* pointing one way, branched; *peduncles* furrowed, with the angles rough. *Calyx*, valves

valves linear-lance-shaped, acute, unequal, smooth, containing 5 or 6 flowers. *Corolla*, inner valve somewhat shorter, bluntish, pubescent on the edge.

F. Panicle oblong, pointing one way: spikets *duriuscula*.
oblong, 6-flowered, smooth: leaves bristle-shaped.

Common in dry meadows and pastures. This is a good grass in pastures, producing foliage in abundance, and continuing in verdure during the winter; but as a meadow grass not very desirable, unless in small quantity, for it is not prolific in flowering stems, and the leaves also become so matted at the base, that it would be an annoyance to others more beneficial. It would be a desirable species in sheep-walks, as its foliage, which is fine, springs early, and vegetates quickly after cutting; and it is a grass that might be worthy of cultivation, as sheep relish it much. It encreases fast by suckers, will grow in any soil, and withstands the drought of summer. Cattle eat it.

P. June. July.

IRISH. { *Fescughén cruadh.*
 { *Fescufhér cruadh.*

ENGLISH.—*Hard Fescue-grass.*

Ob. *Roots* creeping. *Stems* from 1 to 2 feet, upright, cylindrical, leafy, smooth. *Leaves* varying in their length, narrow, acute: those from the root bristle-shaped and rough: those on the stem flat and sometimes pubescent at top. *Sheath* very long, smooth, with a small sheath-scale. *Panicle* much larger in every part than the *Festuca ovina*, the flowers larger and keeled, with the inner glume pubescent at the edge. It differs from the *Festuca dumetorum* by its husks being smooth, from the *Festuca rubra* by its contracted panicle and longer awns, and from the *Festuca ovina* by its long panicle and cylindrical stems.

dumetorum. F. Panicle spike-like, pubescent: leaves thread-shaped.

It grows in woods and shady hedges. On shady banks at the flood-gate along the demesne-wall belonging to the Rt. Hon. David Latouche, Marly, county of Dublin—at Mount Oriel, and on many parts of the improvements of the Right Hon. John Foster, Collon—at the foot of the Saddle

Saddle and Trumpet mountains, county of Louth. This grass is equal to the former, if not better. It rather agrees with shade, although in several situations where it is placed in the Botanic gardens, it has a fine appearance, and being a productive grass would answer well as pasture. It also retains its verdure during winter, and springs early in the season. As a meadow grass not very profitable, as producing few flowering stems, and impatient of mixture with any other. The three last mentioned species are not proper to mix with other grasses for meadow; as they do not admit the growth of any other kind, from their matted leaves and roots.

P. June. July.

IRISH. { *Fescuſen coilltemuſl.*
 { *Fescufh r coilltemhuil.*

ENGLISH.—Wood Fescue-grass. Pubescent Fescue-grass.

Ob. *Roots* creeping. *Stems* 2 feet, upright, cylindrical, pubescent at top. *Leaves* 1 foot long or more, narrow, roundish, pubescent: those on the stem short, striated and pubescent. *Panicle* small, spike-like. *Sheath* long, pubescent, with a short sheath-scale. *Calyx*, inner valve nearly as

L 2

short

short again as the outer, and ending in an awn-like point. *Corolla*, valves nearly equal, pubescent; outer valve ending in a small awn.

Panicles equal.

decumbens. F. Panicle upright, close: spikets nearly egg-shaped, awnless: calyx larger than the florets: stems lying down: sheath-scale ciliated.

It grows in barren moistish pastures, particularly about mountain grounds, as at Howth, Ireland's-eye, the Dublin mountains, &c. &c. This grass is but of little worth, being short in leaves and stems, nor is it very productive of either. It is generally to be met with on the sides of hilly grounds and mountains, where it forms a tolerable part of the verdure; and in such places, from its large seed which is nutritive, may be much relished by some species of cattle, but in an agricultural point of view, otherwise, of little value. Sheep refuse it. P. July, August.

IRISH. { *Fescughén sinte*.
(*Fescufhér sinte*.

ENGLISH.—*Decumbent Fescue-grass.*

Ob. *Roots* fibrous. *Stems* from 4 to 6 inches, decumbent, knotted, stiff, very smooth, leafy. *Leaves* linear,

linear, somewhat blunt, rolled inwards, stiffish, and very rough on the back towards the top. *Sheath* striated. *Sheath-scale* very short, ciliated with fine upright hairs. *Panicle* upright, simple, about $1\frac{1}{2}$ inches long, few-flowered: *spikets* egg-shaped, bulged, smooth, containing from 3 to 5 flowers, and often inclining to purple. *Calyx*, valves the length of the spiket, nearly equal, egg-shaped, rough on the keel. *Corolla*, valves awnless, hairy at the edge and sometimes at the base: outer valve trifid at the end.

F. Panicle loose, very much branched, somewhat *elatio*r. drooping and pointing one way: spikets somewhat awned: the outer ones cylindrical.

It grows in boggy mountains and sides of wet ditches. This is a very tall, strong, productive grass in leaves and stems, and although coarse not unacceptable to most cattle. It would answer best for meadow, if cultivated separately, and would produce a great crop, which would likewise be succeeded by an abundant aftergrass, as it has very strong powers of vegetation. It is not a desirable species in mixture. This I have experienced in the Botanic gardens, where a plot is allotted to it in the farmer's division. It retains
its

its plot, and from observations I have made, other grasses, which happened to be amongst it, seemed to make but slow progress; for, from the luxuriance of its leaves in spring, it rather keeps under and smothers others which have not such quick powers of vegetation as to rise before this extends its foliage. If cultivated and treated after the manner which I have recommended for the *Dactylis glomerata*, it might become a beneficial grass. See *Dactylis glomerata*, page 62. It thrives amazingly well in every situation where it is placed in the Gardens. Sheep, cows, and goats eat it. P. July. August.

IRISH. { *Fescufhén airde*.
{ *Fescufhér airde*.

ENGLISH.—*Tall Fescue-grass*.

Ob. *Roots* fibrous. *Stems* from 3 to 4 feet, striated, leafy, smooth. *Leaves* linear, flat, broadish, rough on the edges. *Panicle* drooping but somewhat upright, about 7 inches long, decompound. *Calyx*, valves unequal, from 5 to 6 florets in each.

calamaria. F. Panicle pointing one way, upright, very much branched, compact: florets oblong, angulated, awnless: leaves sword-shaped, striated.

It

It grows in moist woods. In addition to its being found in a wood near Newtown-barry, by the Rev. Mr. But, the woods of the Dargle, county of Wicklow, and those near Derry and Rostrevor, afford it in abundance. Dr. Wade's *Plantæ Rariores*. In Mr. Tighe's woods at Woodstock, county of Kilkenny. Mr. J. T. Mackay's *Catalogue of rare Plants*.

This grass answers very well in moist woods. It is quick in vegetation after being cut, and affords a good crop, although not very profitable when cultivated out of such habitats. P. July.

IRISH. { *Fescuchén cainemul*.
 { *Fescufhér cainnemhuil*.

ENGLISH.—*Reed-like Fescue-grass*.

Ob. *Roots* fibrous. *Stems* many, upright, 3 feet, reed-like, straight, very smooth, knotted and inclining to purple. *Leaves* upright, flat, sword-shaped, pointed and rough on the edges. *Sheath* nearly the length of the leaves, cylindrical, striated, somewhat rough, with a very short blunt gnawed-like sheath-scale. *Panicle* small in proportion to the plant, upright, inclining one way, very much branched; *branches* in two's and three's, angulated, rough. *Spikets* small, heaped, upright,

upright, egg-oblong, and appearing somewhat pubescent. *Calyx*, valves bristle-shaped, pointed, keeled, nearly equal. *Florets*, from 3 to 5, in opposite rows, somewhat distant; *valves*, nearly equal, bowed, lance-shaped, pointed.

pratensis. F. Panicle pointing one way, nearly upright, loose; spikets nearly strap-shaped, flattened, bluntish; florets cylindrical, lightly nerved.

It grows common in rich meadows and pastures. This is an excellent grass both for meadow and pasture, is of a desirable size in its stems, producing aftergrass in plenty; it is also quick in its growth, is a profitable species to the grazier or farmer, and forms a part in every good meadow. Were an equal quantity of the seed of the *Avena flavescens* and *Poa nemoralis* mixed, and to this mixture were added an equal quantity of the seed of *Festuca pratensis*, I would consider them in such mixture as the foundation of a good meadow. And, as the *Avena flavescens* and *Poa nemoralis* are fine in leaves and stems, they would in such proportion qualify the *Festuca pratensis*, which is much coarser than either; whilst the stout manner in which the *Festuca pratensis* grows, would support and prevent the others
from

from being lodged, which otherwise would happen from the debility of their stems. These three would likewise produce an abundant aftergrafs; for, as the *Avena flavescens* and *Poa nemoralis* incline much to a second crop within the season, they would be greatly assisted by the *Festuca pratensis*, which sends forth leaves in abundance after mowing. I don't consider it as a desirable grafs to cultivate separately, not being very prolific in stems. Horses, sheep, cows and goats eat it. P. June. July.

IRISH. { *Fescufén léna.*
 { *Fescufhér léna.*

ENGLISH.—*Meadow Fescue-grass.*

Ob. *Roots* fibrous. *Stems* erect, nearly 2 feet, cylindrical, smooth, and leafy. *Leaves* linear, pointed, spreading; upper leaves rough on each side. *Sheath* striated, very smooth, with a very short sheath-scale surrounding the stem. *Panicle* nearly upright, branched, pointing one way; *branches* in pairs, unequal, simple for the most part, and rough. *Spikets* on short foot-stalks, alternate, somewhat blunt, smooth, and many-flowered. *Calyx*, valves unequal, somewhat

M

acute,

acute, smooth, one of them broader, three-nerved. *Corolla*, inner valve hollow, jagged at top and pubescent on the edges.

fluitans. F. Panicle upright, branched; spikets nearly fitting, cylindrical, pressed to the spike-stalks, awnless.

Common in wet muddy ditches and ponds. In vacant spots in marshy and moist meadows where water generally lodges, and in ditches, where few others would grow, this grass would be valuable to the grazier or farmer. It is a species of which cattle are remarkably fond, and in quest of which they often risk their lives. There are many useless spots for the cultivation of grain on farms, such as marshes, ditches, or spots in which water lodges, but which have no depth of soil for tillage. In such places this would be a very useful and beneficial grass; for it is abundant in leaves and stems, and grows remarkably fast after being eat down; so that while cattle would be foraging after and picking it in such places, time would be afforded for the recovery of the higher pasture elsewhere, for I have remarked, that cattle will continue browsing an hour or two on a very small compass where this grass is.

I therefore

I therefore consider such spots of ground where it may be cultivated, to be as valuable as the dry pasture, if not more so.

It does not do well on dry grounds, as I have experienced in the Botanic Gardens, for by removing it out of its natural places of growth, it declines gradually, and seldom appears the third season. It is said that the bran produced from the seed, when ground into meal, is given to horses troubled with worms; but they must be kept from water some hours afterwards. Geese and ducks are very fond of the seed, and become fat on them. Cows, horses, and swine eat it.

P. Flowering all summer.

IRISH. { *Fescue* *snamhuighill*.
(*Fescue* *snamhuighill*.

ENGLISH.—*Flote Fescue-grass*. *Water Fescue-grass*.

Ob. *Roots* fibrous. *Stems* trailing at the base, and putting forth fibres at the joints, branched, striated, leafy, smooth. *Leaves* flat, somewhat blunt, and broad: under ones feeble, floating. *Sheath* long, flattened, striated, smooth, with a very short slender gnawed-like sheath-scale. *Panicle* nearly

nearly upright: *branches* alternate, spreading. *Spikets* alternate, nearly sitting, lying close to the branches, strap-shaped, containing from 8 to 10 florets. *Calyx*, valves skinny, blunt, with a green keel. *Corolla*, inner valve notched at the end. It is often found with the panicle scarcely branched, and sometimes spike-like.

Loliacea. F. Spike 2-rowed, drooping: spikets nearly sitting, many-flowered, distant, awnless.

It grows in low moist meadows, particularly along river sides. This is a good meadow and pasture grass, furnishing plenty of foliage and flower stems, and where it happens to be in a meadow, causes a good sward. It also gives very good aftergrass. A circumstance attending this species is, that it does not produce seed; for although it flowers as perfectly in appearance as any other grass, yet a single seed is not formed within the flower. Therefore unless growing naturally in some part of a farm, it does not answer the agriculturist; for were he to cultivate it in quantity, he should collect the plants from such spots as naturally produce it.

P. June. July.

IRISH.

IRISH. { *Fescuféir nolléamhl.*
 { *Fescufbér roilleambuil.*

ENGLISH.—*Darnel-like Fescue-grass.*

Ob. *Roots* fibrous. *Stems* upright, nearly 3 feet, simple, striated, leafy, *Leaves* linear, pointed, spreading, striated, even. *Sheath* long, striated, smooth, with a very short sheath-scale surrounding the stem. *Spike* 8 or 10 inches long, somewhat bowed, 2-rowed, many-flowered, sometimes a little branched at the base. *Spikets* alternate, sitting, nearly upright, many-flowered, smooth; lower ones often upon foot-stalks and in pairs. *Calyx*, glumes awnless, unequal: one of them short, 3-sided but awl-shaped; the other longer and much broader, with many nerves but scarcely keeled. *Florets* in two opposite rows; somewhat distant, acute, scarcely awned, cylindrical, even, and without nerves. This grass bears a great resemblance to the *Lolium perenne*, but may be distinguished by its calyx being of two valves, which is not the case in the *Lolium*, the latter being of one valve only.

BROMUS.

BROMUS.

Cal. 2-valved. *Spikets*, oblong, cylindrical, 2-rowed: *awn* beneath the point.

secalinus. B. Panicle nodding: spikets egg-shaped, flattened: husks naked; seeds distinct, awns awl-shaped, shorter than the blossom, not quite straight.

It grows in corn fields, and in meadows near the sea shore. Alongside the Royal canal, between Dublin and Blancher's-town—on the lands of Santry—in sandy meadows between Clontarf and Howth, county of Dublin. Barrack and Brick-fields, on the estate of the Rt. Hon. John Foster, Collon, county of Louth. On the banks of the Grand canal, near to where it joins the Shannon. Mr. J. T. Mackay's Catalogue of rare Plants.

This is a tall-growing grass, producing stems, leaves, and seeds in abundance. The seeds are large, and must be very nutritive; and I presume, if mixed with other grasses when made into hay, would be very acceptable to cattle. It being an annual grass, it would not answer very well in meadow; moreover, if introduced by mixture when laying down a meadow, there would but very few plants of it appear the following

lowing season after the first year's crop; for the seed is not apt to drop out of the husk, but continues there until the stem rots, and the entire panicle falls to the ground. The quality which this grass possesses, of not shedding its seeds, may be turned to account by the farmer; as it might be very advantageously mixed with red clover, and would produce in the first season a very plentiful crop, without annoying the clover on the ensuing year. Care must be taken, however, that the proportion of the seed of this grass to that of the clover be not too great, as it might grow too thick, and prevent the subsequent growth of the latter. If cultivated separately, like barley and oats, and the crop judiciously intermixed with other grasses in the hay-rick at the time of drawing home, it would make the whole very acceptable to cattle; as the *Bromus secalinus* bears abundance of seed, which is large and mealy, and of course nutritive and substantial. The flowers dye green. Sheep, cows, goats and horses eat it.

A. July.

IRISH.

* I would not be understood to discourage the usual practice of sowing barley or oats with red clover, or to recommend this grass in preference; but it may sometimes happen, that from a scarcity of meadow the above practice may be advisable.

IRISH. *Brum-chén ségalamail.*

Brumfhér ségalambuil.

ENGLISH.—*Rye-like Brome-grass. Field Brome-grass.*

Ob. *Roots* fibrous. *Stems* from 2 to 3 feet, upright, leafy, cylindrical, smooth. *Leaves*, linear, spreading, hairy above and on the margins, rough underneath. *Sheath* even, with a short gnawed-like hairy sheath-scale. *Panicle* nearly 6 inches, close before flower, spreading when in flower, and becoming again close in its feminal state. *Spikets* egg-shaped, containing from 9 to 12 florets; those at the base distant. *Calyx*, valves unequal, awnless, smooth, 3-nerved, skinny at the edges. *Corolla*, outer valve swollen, awned beneath the top: inner valve more narrow and slender, concave, ciliated on the edges. *Awn* not quite straight, and shorter than the outer valve.

mollis. B. *Panicle* nearly upright: spikets egg-shaped, pubescent; awn straight, leaves very soft, woolly.

A very common grass, growing in many situations, as meadows, pastures, banks or hedges,
on

on way sides and on walls. This species, like the former, is an annual, but an earlier grafs. It is productive in leaves, stems, and seed; and to obtain a good crop, annual sowing and broken ground is most congenial to it. In the Botanic Gardens, in the farmer's division, where a plot is allotted to this species, it looks remarkably well, and is much earlier in its spring than the former. This may be accounted for by its shedding its seed early, which vegetates and becomes strong before the approach of winter. Were it the farmer's desire to have a crop of hay off his ground the season in which he sows his red clover, and that he wished, when cutting his clover the ensuing year, to have a mixture of grafs, this species I take to be very desirable for that purpose, as it seeds early. And as the seed soon drops, (which is not the case with the *Bromus secalinus*,) a sufficient quantity would fall to have the desired effect. And from its being an early grafs, and sending up flowering stems successively, it might, at the option of the proprietor, be either cut in a succulent or in a more advanced state. It would also be less dangerous for cattle to eat the clover when in mixture with

N

this

this grass. Sheep, cows, goats and horses eat it. A. June. July.

IRISH. { *brumchéh bog.*
 { *Brumfbér bog.*

ENGLISH.—*Soft Brome-grass. Lob-grass. Oat-grass.*

Ob. *Roots* fibrous. *Stems* upright, 2 feet, cylindrical, striated, often smooth, sometimes pubescent, with swollen knots. *Leaves* and *sheaths* striated and covered with soft villous hairs. *Panicle* upright, close but somewhat spreading: *branches* in semiwhirls of various lengths, pubescent. *Spikets* nearly upright, egg-shaped, acute, lightly compressed, containing from 5 to 10 florets which lie over each other tiled-like. *Calyx*, valves unequal, pointed, skinny on the edges, keeled, covered with soft hairs, and having from 7 to 9 green nerves on the back. *Corolla*, valves similar to the calyx: inner valve very slender: *Awn* rough, the length of the valves.

erectus. B. Panicle upright; peduncles somewhat simple: florets

florets lance-shaped, nearly columnar: root-leaves very narrow, ciliated with fine hairs.

Plentiful on the lands of Santry and Coolock—along the sides of the Royal canal, and south side of the river Toker, county of Dublin.

From my observations on this species, both in its wild and cultivated state, I consider it as a good grass both for meadow and pasture. It is of good size, not too coarse, early in its spring, quick in vegetation, and furnishes exceedingly well in leaves and stems. In laying down meadows it would be a good grass as a mixture; for although slender, it is an upright stiff growing grass, not apt to lodge, or be any way injured by high winds or heavy rains, and would be a mean of preserving others from those casualties which otherwise might happen from their debility. It is my opinion, that in laying down meadows, a portion of strong, stiff, or coarse grasses ought to be introduced, for the above purpose; and as this species answers both for meadow and aftergrass, it would be a very desirable one for the purpose. This day, Jan. 19th, it is more forward in its growth, by an inch and half in the blade, than any other grass in the

Garden. There is a variety of this species, whose spikets are longer, narrower, and smooth; which frequently grows along with the other.

P. July.

IRISH. { *brumfhér sneigh*.
 { *Brumfhér sneigh*.

ENGLISH.—*Upright Brome-grass*.

Ob. *Roots* fibrous. *Stems* nearly 3 feet, upright, straight, cylindrical, smooth, leafy better than half way, 4-knotted. *Leaves* nearly acute, striated; those from the root very narrow, with long white fine hairs which ascend but not in regular order. *Sheath* striated, smooth, with a very short gnawed-like sheath-scale. *Panicle* upright; *branches* upright, many, and of various lengths. *Calyx*, valves lance-shaped, acute, keeled; inner valve largest, three-nerved. *Florets* from 5 to 9, tiled. *Awns*, scarce the length of the glumes. *Corolla*, inner valve lightly ciliated comb-like. *Anthers*, deep saffron colour. The ciliæ on the inner valve is less conspicuous in this species than in any other of the genus.

asper. B. *Panicle* branched, drooping, somewhat rough: spikets strap-shaped, somewhat cylindrical,

drical, 10-flowered, hairy, awned: stems and leaves hairy.

It grows in woods and hedges, particularly among under shrubs, briars, &c. It is a tall grass producing much leaves, but few stems, and in an agricultural point of view of no great value. It thrives best among bushes. Cattle are not fond of it. P. July. Aug.

IRISH. { *Brumfhér giobach*.
Brumfhér giobach.

ENGLISH.—*Hairy Brome-grass*.

Ob. *Roots* fibrous. *Stems* from 4 to 5 feet, upright, cylindrical, striated, smooth at top, three-knotted. *Leaves* spreading, flat, acute, rough with hair, and nearly of a length. *Sheaths* cylindrical, scarcely keeled; lower ones covered with numerous long hairs which are curved at top. *Sheath-scale* short, rent-like. *Panicle* 1 foot, drooping; lesser *branches* mostly in pairs, drooping, rough. *Spikets* from 6 to 10-flowered, long, slender, nearly cylindrical, pendulous. *Calyx*, valves very unequal; larger valve ribbed: smaller one keeled. *Corolla*, larger valve

valve ribbed towards the end. *Awn* shorter than the blossom.

sterilis. B. Panicle spreading: spikets oblong: florets 2-rowed: calyx taper-pointed; awns very long: leaves pubescent.

Common in woods, sides of hedges, and on dunghills. This species is more desirable for its leaves than for its stems; for although prolific in stems, and those not very coarse, they are not palatable to cattle, owing to their very long awns, which are rough and stick in the mouth when chewing. It is the most forward and hardy of all our grasses, and much more productive in foliage. It seeds early, drops its seed soon, vegetates quickly, and furnishes in a very little time after, a very thick cover, of fine, long, soft leaves, that continue green during the winter, and are very acceptable to cattle at that season. It would be a good grass to throw upon any waste, barren, or gravelly place, for where other better grasses would make but little progress, this would be a cover almost the year round. Sheep, cows, goats and horses eat it. A. June. July.

IRISH.

IRISH. { *brum-chén aimrid.*
 { *Brumfbér aimrid.*

ENGLISH.—*Barren Brome-grass.*

Ob. *Roots* fibrous. *Stems* from $1\frac{1}{2}$ to 2 feet, upright, slender, leafy nearly to the top, from 5 to 6-knotted. *Leaves* spreading, flat, somewhat weak, narrow, very soft on each side, pubescent and somewhat rough on the margin. *Sheath* cylindrical, covered with very soft hairs which are somewhat bowed. *Sheath-scale*, oblong, rent-like. *Panicle* drooping: *branches* often by three's, drooping, rough, very long, simple, rarely subdivided. *Spikets* flat, broader upwards. *Calyx*, 6 or 8-flowered; *valves* very unequal, rough: larger valve ribbed, tapering to a point: smaller one keeled. *Corolla*, larger valve ribbed, very rough, not hairy. *Awns* longer than the blossom.

B. *Panicle* drooping: *spikets* egg-oblong, 8-flowered: *florets* tiled, depressed, nearly smooth. *arvensis.*

Found in low meadows, near Cullinagh, Queen's county. Mr. J. T. Mackay's Catalogue of rare Plants.

Not

Not recollecting to see this species cultivated in any quantity in the Botanic gardens, I can form no judgment as to its agricultural value. I have given it as a native grass on the authority of Mr. J. T. Mackay. A. July.

IRISH. *Brumfhér machaire.*

Brumfhér machaire.

ENGLISH.—*Field Brome-grass.*

sylvaticus. B. Spike simple, drooping, pointing one way: spikets fitting, distant, nearly cylindrical: awn longer than the blossom: leaves hairy.

Common in woods and hedges. It is a species of little worth for cultivation, being a harsh looking grass, not very prolific in either stems or leaves. It appears best on the sides of shady ditches, and in low bushy places at the verges of woods; and in such places may afford nourishment to cattle in warm weather, when they withdraw to shade, but I have often remarked they seemed not to like it.

P. June. July.

IRISH.

IRISH. { *Brumfēn fiodbhadh.*
Brumfhér fiodhbhadh.

ENGLISH.—*Slender Wood Brome-grass.*

Ob. *Roots* fibrous. *Stems* 2 feet, upright, simple, leafy, inclining to taper near the top. *Leaves* spreading, somewhat broad, pointed, striated underneath, fringed with long white hairs. *Sheath* straight, striated, hairy, with a short blunt rent-like sheath-scale. *Spike* simple, drooping, 3 inches long. *Spikets* 6 or 7, alternate, sitting, pointing one way, pubescent, and containing from 6 to 9 florets each. *Calyx*, valves unequal, lance-shaped, pointed awn-like, and hairy towards the top. *Corolla*, inner valve linear, ciliated with upright stiff awn-like hairs. *Awn* longer than the blossom.

B. *Spike* simple, upright, 2-rowed: spikets sitting, nearly cylindrical: awn shorter than the blossom: leaves almost without hairs. *pinnatus.*

It grows in dry hilly woodlands. Found by Doctor Scott in the county of Fermanagh, and in hedges near Cullinagh, Queen's county, by Mr. Bradbury. Mr. J. T. Mackay's Catalogue

logue of rare Plants. A more harsh grass than the former, and worse in every respect for agricultural purposes.

P. July. Aug.

IRISH. { *Brumfhén sgiathanach*.
Brumfhér sgiathanach.

ENGLISH.—*Winged, or Pinnated Brome-grass*.

Ob. *Roots* fibrous but somewhat creeping. *Stems* from $1\frac{1}{2}$ to 2 feet, upright, simple, cylindrical, very smooth. *Leaves* nearly upright, spear-shaped, pointed, stiffish, rough, seldom hairy. *Sheath-scale* short, blunt, ciliated. *Spike* simple, upright, of various length: *spikets* from 6 to 10, alternate, sitting, two-rowed but not pointing one way, and their flat sides turned towards the stem, containing from 6 to 10 florets each, which lie closely tiled. *Calyx*, valves nearly equal, lance-shaped, somewhat awned, many-nerved, and hairy at the margin. *Corolla*, inner valve retuse, ciliated with upright bristle-like hairs as in the former. *Awn* shorter than the blossom, terminating.

giganteus. B. Panicle drooping: spikets 4-flowered, shorter than the awns: leaves sword-shaped, nerved.

It

It grows in woods and moist hedges. Luttrell's-town wood, county of Dublin—Grey-Abby wood, county of Down—Knappin wood, county of Antrim.

This is a tall coarse grass, which produces leaves in quantity, but not very productive in stems. In a state of cultivation it appears well as a coarse grass, but requires a renewal every three years; for those stems with their root-leaves, which flower, generally rot the following year, and cause a great deficiency in the plant. It is also liable to be injured by cattle feeding on it, being so easily pulled out of ground by their nipping; for it generally encreases by offsets, whose fibres take but a slight hold in the earth. I don't consider it as a grass worthy of cultivation, unless in shady woods or such like places, where its fibres would take better hold, and where others more valuable would not thrive. Sheep, cows, goats and horses eat it. P. June. July.

IRISH. { *brumfhér aitheach*.
 { *Brumfhér aitheach*.

ENGLISH.—*Gigantic Brome-grass*.

Ob. *Roots* fibrous. *Stems* from 3 to 4 feet, upright, cylindrical, striated, leafy. *Leaves* nearly upright, sword-shaped, pointed, 1 foot long or more, broad, flat, rough on each side and on the margin. *Sheath* long, striated, smooth, without hairs, with a short purple gnawed-like sheath-scale surrounding the stem. *Panicle* drooping: *branches* in pairs, subdivided, angulated, rough. *Spikets* alternate, smooth, drooping, and containing from 4 to 6 florets. *Calyx*, valves unequal, keeled, tapering to a point; inner one broadest and three-nerved. *Corolla*, inner valve as long, and nearly as broad as the outer, acute, not ciliated. *Awn* twice the length of the blossom or more.

AVENA.

AVENA.

Cal. 2-valved, many-flowered: *awn* from the back of the blossom, twisted.

A. Panicked: calyx 2-flowered: male floret *elator*.
awned: hermaphrodite floret sometimes awnless: roots bulbous.

It grows in meadows, pastures, wet damp places, and hollow ways. This grows very tall, surmounting all others in meadows where it naturally inhabits. It is a good grass as hay, furnishing well in leaves and stems, and has the good property of sending forth after-grass in abundance. It is not very apt to lodge, and it continues flowering successively a considerable time. It answers in most soils, and is not choice in its situations. Were an equal quantity of the seed of *Poa trivialis* and *Poa nemoralis* mixed, and if to this quantity in mixture were added an equal quantity of the *Avena elator*, I should imagine a good crop of hay would be the result. For *Avena elator* being a tall grass, somewhat coarse and strong, it would in such proportion be a support

port and a shade to both these other grasses, whose leaves and stems are fine, and thrive best when in shade and mixture. They would besides be an improvement to the *Avena elatior*, to qualify and make it more palatable to cattle. They are three grasses which give great aftergrass, therefore the product as such must be valuable in conjunction. There is a variety of this grass without awns, which grows near Luttrell's-town along the way side.

P. July. Aug.

IRISH. { *Coince airde*.
 { *Coirce airde*.

ENGLISH.—*Tall Oat-grass*.

Ob. *Roots* bulbous, sometimes a double pear-shaped bulb one above the other. *Stems* upright, from 3 to 4 feet or more, simple, leafy, smooth. *Leaves* rough above and on the edges. *Sheath-scale* short, dented. *Panicle* upright: branches in semiwhirls, rough. *Male floret* with a large awn placed towards the base: hermaphrodite floret very short, nearly terminating.

pubescens. A. Panicle spike-like: calyx 3-flowered: blossom bearded at the base; leaves flat, downy.

Frequent

Frequent in dry pastures and meadows. This is not a very prolific grass, bearing but few stems which are feeble, and its foliage short which are very bitter. It is an early grass, and sheds its seed very soon after being ripe. In an agricultural point of view of no great value, unless as a variety amongst others, being a slightly grass, from its purplish and silvery white flowers.

P. June.

IRISH. { *Coisce cluimadh*.
 { *Coisce cluimhadh*.

ENGLISH.—*Downey Oat-grass*. *Pubescent Oat-grass*.

Ob. *Roots* fibrous. *Stems* from 1 to 2 feet, upright, simple, nearly cylindrical, smooth, leafy. *Leaves* spreading, short, blunt, flat, covered each side, as likewise the lower sheaths with soft downy hairs. *Panicle* upright, spike-like, not much branched, nearly inclining one way. *Calyx*, valves very unequal, rough on the keel, acute at top, awnless: inner valve double the length of the outer. *Corolla*, inner valve smallest, and narrowest, awnless and rough on the edge: outer valve with an awn placed on the back below the middle. *Awn* twice the length of the calyx.

P. June. July.

A. Panicle

flavescens. A. Panicle loose; calyx 3-flowered, short: all the florets awned: leaves flaccid, mostly pubescent.

It grows in meadows, pastures, on hills and way sides. A good meadow grass, producing much stems which are very fine, as likewise its foliage, and would be an acceptable species as a mixture in any meadow. From observations I have made in the Botanic gardens, in the farmer's division, where a plot is allotted to this grass, it always appeared to be in good quantity, and looked remarkably well. It holds its ground but is generally lodged, owing to the debility of its stems, and is, on this account, more desirable in mixture than separate.

P. June. Sept.

IRISH. { *Coirce orfholltach.*
{ *Coirce orfholltach.*

ENGLISH.—*Yellow Oat-grass. Yellow Oat. Yellow-haired Oat-grass.*

Ob. *Roots* fibrous, somewhat creeping. *Stems* $1\frac{1}{2}$ feet, upright, somewhat branched at base, leafy, striated, 3-knotted, and often with small hairs

hairs under the knots. *Leaves* flat, acute, less or more pubescent. *Sheath* striated, with a somewhat hairy sheath-scale. *Panicle* somewhat drooping, loose, first a yellow green, then changing to a golden yellow; very much branched: branches in semiwhirls: little branches rough, somewhat waved. *Calyx*, valves acute, keeled, very unequal. *Corolla*, inner valve somewhat shorter but more narrow. *Awn* nearly twice as long as the blossom.

A. Panicle spike-like: calyx 5-flowered: leaves *pratensis*.
stiff, edges rolled inwards.

Heaths and high chalky grounds. I have entered this species as a native on the authority of the Botanic Catalogue, by Mr. John Underwood.

This grass is not very prolific in stems, nor are its leaves very long. It is a species not worthy the notice of the agriculturist, either for meadow or pasture, as being rigid in its leaves, and not a very desirable size in stems. Sheep, goats, cows and horses eat it.

P. June. July.

IRISH. { Coirce moirféh.
 { Coirce moirfher.

ENGLISH.—*Meadow Oat-grass.*

Ob. *Roots* fibrous. *Stems* 1 foot or more, upright, straight, simple, striated, with one knot towards the base. *Leaves*, those from the root strap-shaped, acute, rigid, and doubled together: those on the stem broader, nerved. *Sheath* very long, smooth, with a spear-shaped sheath-scale. *Spike* upright, mostly simple; *spikets*, upper ones fitting: lower ones on foot-stalks, those seldom in pairs. *Calyx*, valves nearly equal, acute, three-nerved, and the length of the under floret. *Corolla*, inner valve very slender, fringed with small hairs. *Awn* twice the length of the blossom.

ARUNDO.

Cal. 2-valved: *fiorets* heaped together, awnless, surrounded with down at the base.

Phragmitis. A. Calyx 5-flowered: panicle loose.

Common in rivers, lakes and ditches. This is
a very

a very tall grass, abundant in leaves and stems, but very coarse. It is frequently to be met with in low marshy meadows, and at the edges of rivers; and although naturally growing in such situations, it bears cultivation on dry ground amazingly; for in several of the divisions in the Botanic gardens, where it happens to fall in the arrangements, it thrives remarkably, and soon would extend itself were it permitted. However its utility to the agriculturist would be of little value, being a grass, from its creeping roots, that he ought rather to extirpate than encourage. In its natural situations it may not be so useless, as it forms a cover, and may be relished at times by some species of his cattle; it would also answer for thatching, being more durable than straw, and might likewise be used across the frame of wood-work, as a foundation for plaister floors. The flowers dye woollen green. Cows, goats and horses eat it. P. July.

IRISH. { *Cuile Cruisgiornagh*.
 { *Cuile Cruisgiornagh*.

Biorach lachan. Birab laghon. Cruisgiornah.

ENGLISH.—*Common Reed grass.*

Ob. *Roots* creeping. *Stems* upright, from 4 to 6 feet, simple, knotted, leafy. *Leaves* lance-shaped, pointed, spreading, smooth, rough on the edges, very even underneath, glaucous. *Sheath* cylindrical, striated, smooth, with a very short gnawed-like sheath-scale furnished with hairs on each side. *Panicle* nearly upright, spreading, very much branched and inclining one way. *Spikets* upright, from 4 to 6-flowered; flowers surrounded with down at the base, which down is about the length of the florets, and rises from the spike-stalk. *Calyx*, valves very unequal, lance-shaped, acute, keeled: larger valve with three nerves. *Corolla*, inner valve double as short as the outer, and ciliated.

colorata. A. *Calyx* 1-flowered, keeled: panicle upright, heaped: flowers pointing one way, awnless: leaves broad: flat.

Common

Common on the banks of rivers and sides of ponds. This is a tall species which is abundantly supplied with leaves and stems; it is a strong coarse grass, which would be very productive in moist situations. If cultivated in such places, and a certain number of cattle put on it at a proper season, so as to keep it in check, it might answer well as pasture; for the oftener it is cropt the more acceptable it is to cattle. It is very quick in growth, and would even thrive well in drier situations than where it naturally inhabits; for in the Botanic gardens, in several parts, where it happens to fall in an arrangement, it thrives amazingly, and, although in dry situations, furnishes an abundant crop. It is an excellent thatch for ricks or cottages, and lasts much longer than straw. There are two varieties of this species, one with silver-striped, the other with gold-striped leaves, which are often met growing with it: they are accidental varieties, and if taken in and cultivated will continue their variegation. The two varieties are in the Botanic gardens, and were introduced from their wild situations some years back. Sheep, cows, goats and horses eat it.

P. July.

IRISH.

IRISH. { *Cuile ioldathach*.
 { *Cuile ioldathach*.

ENGLISH.—*Canary Reed-grass*. *The variegated kinds are known by the names of Ribband-grass. Painted Lady-grass. Ladies Traces, &c.*

Ob. *Roots* creeping, matted. *Stems* from 3 to 5 feet, upright, cylindrical, leafy, smooth, many-knotted. *Leaves* spreading, lance-shaped, somewhat acute, even on each side and on the edges. *Sheath* nerved, swollen, smooth, with a short and somewhat blunt sheath-scale. *Panicle* upright, branched, dividing in little lobe-like clusters: little branches angulated, rough. *Calyx*, valves unequal, flattened, keeled, three-nerved, nearly acute, rough on the keel, and containing one floret. *Corolla*, valves equal, hairy on the outside: outer valve broadest and enclosing the inner.

arenaria. A. *Calyx* one-flowered, longer than the corolla: panicle spike-like: flowers upright, awnless: leaves, edges rolled inwards, pointed thorn-like at the end.

This

This plant is generally met with on dry sandy sea shores, and in such places is not without value, for it forms great tufts, and would, if cultivated upon the sea shore, prevent the wind from dispersing the sand over many fertile acres of land adjoining.* Mr. J. T. Mackay, in his Catalogue of rare Plants, mentions it as growing abundantly on the sandy beach at the bottom of Burren mountains, county

* There are three grasses, although not indigenous, that may not be unworthy of notice in this place, from their utility in forming a bank against the irruptions of the waves; they are all of the genus *Elymus*, and the species are the *arenarius*, *geniculatus*, and *giganteus*. To Gentlemen, whose grounds extend along the sea shore, the cultivation of these grasses would be of the utmost importance. They are strong and tall-growing, thick and prolific in their stems, and the roots extend and go so deep in the ground, that any cover thrown on them by the tides would rather improve than retard their growth: they would soon form a bank that would effectually prevent the encroachments of the sea. In stopping the flying sands they are superior to the *Arundo arenaria*. A line of these grasses, planted along the sea shore from Clontarf to Suttin, would have prevented the banks from being worn away by the waves, and would have preserved the car-way, which was formerly passable, but is now a flooded strand. Gentlemen who visit the Botanic gardens, by viewing these three species, may judge of their utility for the above purpose.

county of Clare, and it is there considered valuable for feeding cattle in winter, as in that country straw and hay are both very scarce. It makes an excellent thatch for houses, and will sometimes last for twenty years. Cattle will eat of it in winter, but in summer they leave it untouched. The flowers and seed are possessed of an emetic quality, and may be used where the ordinary emetics cannot be obtained. They vomit strongly, but are not dangerous in their operation. P. July.

IRISH. { *Cuilc muiriunadh*.
 { *Cuilc Muiriunadh*.

Muiriunach. Maithine. Mebain.

ENGLISH.——*Sea Reed-grass. Sea Matweed.*

Marram. Helme.

Ob. *Roots* creeping, jointed, extending widely and to some distance. *Stems* ascending, nearly 3 feet, stiff, smooth, knotted, knee-bent at the base, leafy. *Leaves* upright but spreading, straight, rigid, rolled inwards on the edges, ending dagger-pointed, furrowed above, and very even underneath. *Sheath* nerved, smooth, with an elongated acute sheath-scale. *Panicle* upright,

upright, spike-like; branches short, upright, and lying close. *Calyx*, valves nearly equal, acute, rough on the keel, and somewhat longer than the floret. *Corolla*, valves lance-shaped, unequal, rough on the keel: outer valve gnawed-like at top and enclosing the inner.

LOLIUM.

Cal. 1-valve, fitting, many-flowered: *florets*
2-rowed.

L. Spike awnless: spikets compressed, many-*perenne.*
flowered, longer than the calyx.

A very common grass in meadows, pastures, way-sides and waste places. It is a good grass for either meadow or pasture. As a meadow grass, when in mixture with others, or even separate, it is valuable, from its stems being abundant, of good size, not coarse, and its seed being nutritive; it also carries weight, though it does not bulk well. As a pasture grass, it is hardy, early, continuing its verdure during
the

the winter, rapid in the growth of its foliage, and not averse to any soil. Notwithstanding all these good qualities, I have often heard it spoken lightly of. However, many gentlemen and farmers are not aware that this grass in its seed should be changed once in every four years at least; as is commonly the case throughout this island with potatoes and oats. This I have experienced in the Botanic gardens; for I have remarked whenever I brought in a variety of this grass from any distance, such as eight or ten miles, it thrived better than any I had collected in or about the ground.

From what I had heard at Lecture, I consider Mr. Pacey's Ray-grass (for which he has so considerable demand) to be an improved variety of the *Lolium perenne*. This improvement I take to be owing to nothing else than the change of soil; for, as I have remarked, it will degenerate, as potatoes and corn do, if there be not a change either in seed or soil.

About thirty years ago I recollect that whole fields of this grass were cultivated at Rathescar, a country seat belonging at that time to the Rt. Hon. John Foster, and was esteemed by

by the oldest men and farmers as the most valuable grafs. If I do not mistake the seed was imported; however in the fourth crop it began to decline, which circumstance confirms me in the opinion, that change of seed is necessary in this species. I therefore should consider Mr. Pacey's Ray-grafs to be no other than the *Lolium perenne*.

The seed he collects from a wild state, and sows, it improves by the change; with this improved seed he supplies his customers, with whom it still further improves from the variation of soil. This process he repeats annually, and thus I would account for the superiority of the Ray-grafs for which this gentleman is distinguished. If any gentleman or farmer will cause to be collected a small quantity of the *Lolium perenne*, which grows some miles distant from his estate or farm, particularly if he collect it from old pastures or mountain grounds, and that he sows it in a part of his soil which is neither too rich nor too poor, the result will demonstrate that the superior excellence of Mr. Pacey's Ray-grafs depends on that operation. He may likewise observe, that in the course of the fourth crop, if not re-

newed as above, it will degenerate to its former natural manner of growth. There are varieties of this grass, one with broad spikes, one with round spikets, and one whose spike is somewhat branched; they are all to be met with pretty frequently. Cows, horses and sheep eat it. Goats are not fond of it.

P. June. July.

IRISH. { *Roille marčanač.*
 { *Roille marthanach.*

Raidhlead. Roille.

ENGLISH.—*Perennial Darnel-grass. Ray-grass.*

Red Darnel-grass. Crap.

Ob. *Roots* fibrous. *Stems* 1 foot or more, upright, knotted, knee-bent at the base, leafy, cylindrical, smooth. *Leaves* linear, keeled, smooth. *Sheath* striated, smooth, with a short blunt sheath-scale surrounding the stem. *Spike* nearly upright, two-rowed, flattened. *Spikets* alternate, upright, egg-shaped, compress, many-flowered, and sometimes awned. *Calyx* of one valve, lance-shaped, somewhat hollow inside, acute, awnless, and nearly twice as short as the

the spiket. *Corolla*, inner valve smallest, ciliated, concave.

L. Spike awnless, cylindrical: spikets three-flowered. *tenuis*.

It generally grows in dry pastures, and on declivities. On the lands about Collon, Tinure, and Fuinsog, county of Louth. Above Scribble's-town, near the Observatory, where it had been previously observed by Doctor Brinkley, county of Dublin. It is a slender grass in its leaves, stems and spikes, and very little inferior to the former, except that it is smaller in every respect.

I presume it is only a variety of the former; for although I have frequently found it with its spikets containing but three florets, yet when I introduced and cultivated it in the Gardens, its spikets produced five florets, and the whole plant appeared very little inferior to the *Lolium perenne*. Perhaps this may be attributed to change of soil. Cattle eat it.

P. June. July.

IRISH.

IRISH. { *Roille caol.*
 { *Roille caol.*

ENGLISH.—*Slender Darnel-grass.* *Slender Ray-grass.*

Ob. Similar to the former in every respect but being more slender, and its calyx being something longer, also its spikets containing but three florets when in its wild state.

resulendum.

L. Spike awned: spikets shorter than the calyx: stems rough at top.

It generally grows in ploughed lands, among oats, wheat, and sometimes flax. This grass bears stems, leaves and seed in abundance; the seeds are large, mealy and nutritive, and were it relished by cattle, when made into hay, must be very substantial.

It might be sown with red clover, and would answer as fodder in a recent state. Its further utility, in an agricultural point of view, would be but little. In wheat and oat fields it is a great pest; the seed is often ground with them into meal, and when made into bread, if eaten when hot, causes a dizziness.

ziness in the head not unlike drunkenness, but if eaten when cold produces but little effect. Brewers and distillers, when purchasing barley, do not think it disadvantageous to have a small quantity of this grain mixed therein; as it is of an inebriating quality, as its name imports. In Oughterard, in that part of the county of Galway called Cunnamara, the inhabitants are obliged, before they stack their grain, to open every sheaf, and glean out this grass. Sheep are not fond of it.

A. June. July.

IRISH. { *Roille breoslean*.
 { *Roille Breoillean*.

Ruinhelais. Ruinhelean. Bod a rinker.

ENGLISH.—*Annual Darnel-grass. Rivery.*

Ob. *Roots* fibrous. *Stems* upright, 2 feet, firm, cylindrical, three-knotted, leafy, very smooth below, rough above. *Leaves* lance-shaped, spreading, rough. *Sheath* striated, somewhat rough, with a very short blunt crenulated sheath-scale. *Spike* upright, similar to the former, but much grosser. *Calyx*, valve lance-shaped, somewhat acute, awnless, striated, and

and generally longer than the spiket; the terminating spiket with a two-leaved calyx: and the lowermost spikets have a minute inner leaf to the calyx. *Corolla*, inner valve awnless, concave, somewhat ciliated.

arvense. L. Spike awnless, rather shorter than the calyx: stems very smooth.

It grows among corn, and in potatoe fields. In corn fields about Roche's-town, and potatoe fields about Glasnevin, county of Dublin. Its value in agriculture may be considered in the same point of view as the *Lolium temulentum*.

A. June. July.

IRISH. { *Roille branar*.
 { *Roille branar*.

ENGLISH.—*Corn*, or *White Darnel-grass*.

Ob. It is not so common as the former, to which it is very similar, but may be distinguished from it by its stems being smooth; its calyx not being longer than the spiket, and by the latter being awnless.

ROTBOLLIA.

ROTBOLLIA.

Cal. of 1 or 2 valves, egg-spear-shaped, flat: *incurvata*.
florets alternate on a zigzag spike-stalk.

R. Spike cylindrical, awl-shaped, curved: calyx, husk awl-shaped, lying close to the spike-stalk, divided into two.

It grows in wet pastures, and places along the sea shore. In old quarries at the sand banks between Baldoyle and Howth. In wet marshes below Irishtown, county of Dublin. In a salt marsh a little below Cork, and on the south isles of Arran. Mr. J. T. Mackay's Catalogue of rare Plants. It is a grass of little or no value to the farmer. A. Aug.

IRISH. { *Durghér fairge*.
 { *Durghér fairge*.

ENGLISH.—*Sea Hard-grass*.

Ob. *Roots* fibrous. *Stems* many, decumbent at the base, branched, very smooth, leafy. *Leaves* spreading, linear, acute, flat, rough above and on the edges. *Sheath* shorter than the

the leaves, somewhat swollen, with a short blunt sheath-scale. *Spike* terminating, solitary, cylindrical, somewhat bowed, smooth, and containing many florets. *Calyx*, valves placed outwardly, strap-spearshaped, acute, smooth; one valve expanding when the pollen is ripe. *Flowers* solitary, somewhat shorter than the calyx: valves skinny on the edges, nearly equal, awnless.

ELYMUS.

caninus. *Cal.* lateral, 2-valved, several together, many-flowered.

E. *Spike* upright, compact; spikets upright, without an involucre: the lowermost in pairs.

It grows in woods and hedges. On the way-side and in hedges between Knockmarron-hill and Lucan-bridge. In the wood, and in hedges at Luttrell's-town, county of Dublin.

This grass grows pretty tall, furnishing well in leaves and stems, yet not very desirable for meadow

meadow or pasture, as being rather wiry, and as its spikes have long awns, which would cause the hay to be rather unpalatable to cattle, nor is its aftergrass prolific. It bears a great resemblance to the *Triticum repens*, or Couch-grass, but may be distinguished from it by its fibrous roots, which do not creep in the ground as those of the *Triticum repens*.

P. July. Aug.

IRISH. { *Uolxén feusagac*.
 { *Aolfhér feusagach*.

ENGLISH.—*Bearded Lyme-grass. Bearded Wheat-grass.*

Ob. *Roots* fibrous, not creeping. *Stems* many, upright, straight, 2 feet or more, leafy, very smooth. *Leaves* strap-spearshaped, acute, nerved, flat, rough on each side and sometimes hairy. *Sheath* striated, smooth, with a very minute sheath-scale. *Spike* from 3 to 4 inches, nearly upright. *Calyx*, valves equal, lance-shaped, ending awn-like. *Corolla*, inner valve ciliated: *awns* twice as long as the florets.

HORDEUM.

Cal. Lateral, 2-valved, 1-flowered; 3 together.

murinum. *H.* Lateral florets male: awned: involucre of the intermediate florets fringed.

Very common along way sides and walls, particularly about the vicinity of Dublin. This grass sends forth leaves and stems in great quantity, and before the flower spike appears is relished much by cattle; but afterwards is rather disagreeable and injurious to them, from the awns or beard of the ears which stick in their mouths and cause a foreness that renders them incapable of eating for some time.

Along the pathways in the vicinity of Dublin, where this grass is to be met with, I have observed that whilst it is in foliage, it is generally kept down by cattle, but when shooting for flower is afterwards left untouched.

Unless for its leaves before the appearance of the spike, it is an unprofitable and unfit grass for cultivation, being one that should be cautiously

cautiously avoided in a farm for the reasons above-mentioned. Sheep and horses eat it.

A. July. Aug.

IRISH. { *Eorna balla*.
 { *Eorna balla*.

Cuifog fhinn.

ENGLISH.—*Wall Barley*. *Way Bennet*. *Wild Rye*. *Rye-grass*. *Mouse-ear Barley*.

Ob. *Roots* fibrous. *Stems* many, 1 foot, nearly upright, decumbent, knotted, and knee-bent at the base, spreading, leafy. *Leaves* spreading, linear-lanceolate, acute, striated, rough. *Sheath* almost the length of the leaves, somewhat bellying out, striated, very smooth, with a very short sheath-scale. *Spike* upright, from 2 to 3 inches, many-flowered. *Spikets* 2-rowed, tiled. *Calyx*, outer valve bristle-like; inner one three-nerved, ciliated comb-like and all awned. *Awns* straight, very rough, and double the length of the glumes. *Florets* solitary, lance-shaped, awned: *Awns* longer than those of the calyx: inner valve blunt, pointed.

H. Lateral

pratense. H. Lateral florets male, awned: involucrem
bristle-shaped, rough.

Moist meadows and pastures. Meadows along the Royal canal from the Cross-guns to Blancherstown—meadows between the Crescent and Clontarf, county of Dublin. The foliage of this species is far inferior to that of the former in quantity and size, yet in mixture with other grasses it produces a tolerable share of stems, which are not so injurious to cattle in their effect as the other, but nevertheless a grass not to be recommended to the agriculturist for cultivation either in mixture or separate.

P. July. Aug.

IRISH. { *Eorna léna.*
 { *Eorna léna.*

ENGLISH.—*Meadow Barley.*

Ob. *Roots* fibrous. *Stems* $1\frac{1}{2}$ feet, upright, slender, leafy, naked above, smooth. *Leaves* spreading, linear, acute, somewhat rough. *Sheath* not much bellying, striated, smooth, with a small sheath-scale. *Spike* as in the former,

mer, but more slender, and its awns shorter. *Calyx*, valves equal, very narrow, bristle-shaped, rough, awned. *Florets* mostly as in the former, but the lateral ones on longer foot-stalks, and much shorter in the awns.

H. Lateral florets male, awned, rough on the back; middle floret hermaphrodite, with a long awn: involucre rough. *maritimum.*

In sandy and gravelly banks along the sea shore between Swords and Rush, but not in quantity. A grass of little value. It is rather injurious to cattle, if accidentally introduced among hay, from its stiff awns.

A. July. Aug.

IRISH. { *Eorna mara.*
 { *Eorna mara.*

ENGLISH.—*Sea Barley. Sea-side Barley. Squirrel-tail-grass.*

Ob. *Roots* fibrous. *Stems* many, about 4 inches high, decumbent at the base, then upright. *Spike* about 1 inch, compact. Its size will readily distinguish it from the two former, and

and as there are but three of the genus found to be indigenous, it may be easily known.

TRITICUM.

Cal. 2-valved, solitary, mostly 3-flowered: *floret* bluntish.

juncum. T. Calyx 5-flowered, lopped: leaves, edges rolled inwards.

Common on sandy sea shores. A stiff hard grass in leaves and stems, and of little consequence to the agriculturist. It would be a good grass to encourage along the sea shore, to prevent the sands from dispersing over the adjoining fields, particularly if in mixture with *Arundo arenaria* and the three species of *Elymus* I have recommended for such purposes when speaking of the *Arundo*. P. July.

IRISH.

IRISH. { Cruithneachd luachairamhail.
 { Cruithneachd luachairambuil.

ENGLISH.—*Rush-like Wheat-grass. Sea Wheat-grass.*

Ob. *Roots* very much creeping. *Stems* nearly upright, inclining to purple towards the base, cylindrical, very even, leafy as far as the middle, naked at top. *Leaves* nearly upright, narrow, sharp-pointed, rolled in on the edges, glaucous, very even underneath, striated above and somewhat rough. *Sheath* straight, smooth, with a very short sheath-scale. *Spike* upright, straight, glaucous, about 3 inches. *Spikes* solitary, nearly upright, 2-rowed, somewhat distant, often smooth or pubescent with or without awns. *Calyx*, valves furrowed, blunt. *Flowers* 5 or 6, the length and shape of the calyx, somewhat keeled, bifid at top; inner valve somewhat smaller than the outer, and ciliated.

T. Calyx 4-flowered, awl-shaped, tapering to *repens.*
 a point: leaves flat.

Common in ditches, hedges and cultivated
 s places.

places. This is a productive grass in roots, leaves and stems; very often too much so, as is well known to the farmer, gardener, &c. who I presume are so well acquainted with this species, that any opinion of mine as to its merit in agriculture, would be needless. Although this grass has its disadvantages, it is not altogether without utility; for it is said that in times of scarcity the roots, if gathered, dried and ground into meal, form an agreeable substitute for bread. My opinion is, that where this grass grows naturally, it is an indication to the farmer that such part of his soil is in good heart; for in situations where the soil is naturally good, or has been made so, *Triticum repens* will be found in greatest quantity. Cows, sheep and goats eat it. Horses also eat the leaves when young, but leave them untouched when fully grown. P. July.

IRISH.

IRISH. { Cruithneachd Bruimsean.
Cruithneachd Bruimsean.

Bruimsean. Bruimfheur. Fiothran. Urin.

ENGLISH.—Wheat-grass. Squitch-grass. Quick-grass. Quitch-grass. Skully-grass. Dog's-grass. Dogs-wheat. Couch-grass.

Ob. There is a variety of this grass panicled; the spike is also often with and often without awns.

T. Spike simple, compress: spikets egg-shaped, *loliactum*. pointing one way; calyx blunt, many-flowered.

It grows on sandy sea shores. Along the sandy and gravelly sea shore under Sutton, at Howth, county of Dublin. From the diminutive size of this species, and the natural situations in which it grows, it is of very little use in an agricultural point of view. However it is eaten by some species of cattle; as I have frequently seen it kept close down by their nipping, and therefore must conclude it not unacceptable to them. A. June.

IRISH. { *Cruithneachd abach.*
 { *Cruithneachd abhach.*

ENGLISH.——*Dwarf Wheat-grass. Sea Wheat.*
Dwarf Sea Wheat-grass.

Ob. *Roots* fibrous. *Stems* many, nearly upright, branched, rigid, somewhat compressed, leafy, from 3 to 5 inches. *Leaves* linear-lance-shaped, somewhat acute, roughish on the back. *Sheath* somewhat bellying, somewhat striated, smooth, with a short blunt gnawed-like sheath-scale. *Spike* upright, stiff, 2-rowed, pointing one way: *spikets* alternate, lance-shaped, mostly solitary: the under ones often in two's, three's, and sometimes in four's. *Calyx*, valves equal, blunt, keeled: *florets* many, tiled, 2-rowed, smooth, bluntish, awnless, and as large as the glumes of the calyx. It is not unlike the *Poa rigida*, but may be distinguished by its spikets pressing close to the spike-stalks.

POLYGAMIA MONOECIA.

HOLCUS.

HERMAPH. *Cal.* Husk of 1 or 2 flowers.

Cor. 2 valves, outer one awned. *Stam.* 3.

Styles 2. *Seed* 1.

MALE. *Cal.* Husk of 2 valves. *Cor.* either wanting or of 2 valves. *Stam.* 3.

H. Husks woolly: hermaphrodite floret awn-*lanatus.*
less: male floret with a bent awn, inclosed
in the calyx: roots fibrous.

Common in meadows and pastures, particularly in light and moist soils, such as turf or peat lands. This grass vegetates rather late in the season, yet produces an abundant crop. When sown separate, it does not continue more than four years productive; nor do I consider it as a grass fit to be sowed separate. It is a species, if not mixed with other stronger grasses, that rather inclines to be prostrate; and from its abundant produce of
leaves

leaves and stems, the under part generally suffers materially. When sowing some of the strong or coarse grasses, such as *Dactylis glomerata*, *Festuca elatior*, *Avena elatior*, or *Phleum pratense*, I would advise a certain portion of the *Holcus lanatus* to be sown with them. For the strong foliage and stems of the above four, would support the weak prolific leaves and stems of this *Holcus*, and cause them to incline upright, by which an essential part of its produce, that next the earth, might be preserved, which otherwise would be injured for want of air. There are two varieties of this plant, one with silver-striped, the other with gold-striped leaves, which I have often met growing. Cattle eat it.

P. June. July.

IRISH. { *Minfher birchalgaic*.
 { *Minfher birchalgaic*.

ENGLISH.—*Short-awned Soft-grass. English Hayseed. Soft, or Meadow Soft-grass.*

Ob. *Roots* fibrous. *Stems* many, upright, striated, leafy. *Leaves* flat and soft to the touch, hairy underneath. *Sheath-scale* truncated, short,

short, toothed. *Panicle* upright, compact, soft to the touch, often inclining to purple: little branches in semiwhirls, very much branched, and hair-like. *Calyx*, glumes equal, pointed, villous, often coloured. *Florets* on short pedicles: the upper one hermaphrodite, awnless: the other male, with an awn not longer than the blossom.

H. Husks nearly equal, hermaphrodite floret *mollis*.
awnless: male awned: roots creeping; joints woolly.

It is generally to be met with along wood-sides, hedges, and other shady places.

A grass much more early in its foliage than the former, and far better as a pasture grass. It is not liable to decay, nor is it apt to lose ground as the *Holcus lanatus* does, and this I may say is owing to its creeping roots. It would bear to be cultivated on dry, gravelly, or sandy soils, especially if on a northern aspect, and is capable of sustaining drought equal to any grass. It is not abundant in flowering stems, nor is it to be considered as a good meadow grass. It thrives best at the foot of hills or mountains, particularly on the northern side,

side, and in such produces much foliage. I don't consider it as a fit grass for cultivation in meadows, except for its leaves, or that by its creeping roots it might bind the surface of the earth, and prevent the ground from cracking in very dry weather, which is a thing that often happens. Cows, horses and sheep eat it.

P. July. Aug.

IRISH. { *Minféir fadchalga.*
 { *Minfbér fadchalgach.*

ENGLISH.—*Long-awned Soft-grass. Creeping Soft-grass.*

Ob. *Roots* creeping, widely extending. *Stems* solitary, ascending, leafy, smooth, woolly on the knots. *Sheath-scale* roundish, dentated. *Panicle* upright, loose, thinly set, purplish-white; little branches mostly in pairs, hair-like, villous. *Calyx*, valves nearly equal, ciliated on the keel. *Florets* as in the former, but hairy at the base. *Awn* twice the length of the blossom.

*All the Grasses mentioned in the preceding pages,
with a concise account of their properties, may
be seen at one view in the following table.*

Alopecurus pratensis,	}	Four good early grasses, which thrive in almost every soil.
Festuca pratensis,		
Lolium perenne,		
Bromus erectus,		

Avena flavescens,	}	Three grasses which pro- duce a second crop, and thrive best when in mixture.
Poa nemoralis,		
Poa trivialis,		

Poa pratensis,	}	Produces good aftergrass, and endures drought; by its creeping roots it keeps the surface of the ground from crack- ing in a dry season.
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Anthoxanthum odora- tum,	}	From its flavour makes other grasses more pa- latable to cattle.
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Dactylis glomerata,
Festuca elatior,
Avena elatior,
Phleum pratense,

Four very productive
 grasses, capable of be-
 ing cultivated separate-
 ly. They are coarse
 grasses, but might be
 judiciously intermixed
 in the rick at the time
 of drawing home.

* *Agrostis stolonifera*,
Agrostis maritima,
Holcus lanatus,

Three grasses which from
 the debility of their
 stems are incapable of
 rising without the sup-
 port of stronger grasses,
 such as the above four.

Festuca loliacea,

A grass good for meadow
 or pasture in moist
 soils, but from abor-
 tion in seed is only to
 be propagated by part-
 ing the roots.

Bromus

* A variety of this species, with silver-striped leaves, has
 been sent from Dungan's-town, in the county of Wicklow,
 to the Botanic gardens, by Mr. Edw. Hodgens, nurseryman.

Bromus secalinus,
Bromus mollis,

Two nutritive grasses to
 sow with red clover.
 They might be made
 into hay, or cut as
 green fodder. If for
 hay, they ought to be
 intermixed in the rick
 at the time of drawing
 home.

Poa compressa,
Phleum nodosum,
Phleum alpinum,
Festuca decumbens,
Agrostis hispida,
Agrostis pumila,
Aira cristata,
Aira flexuosa,

Eight grasses growing
 on mountains, hilly
 grounds, and other
 places. They produce
 verdure on different
 parts where the better
 meadow or pasture
 grasses would not
 thrive.

Briza media,
Cynosurus cristatus,
Avena pubescens,

Three grasses growing
 on high grounds, and
 which are more profi-
 table for their leaves
 than their stems.

Milium effusum,	} Nine grasses growing in woods, glens, ditches & other shady places, more esteemed for their leaves than stems. These furnish pasture in the above situations, where better grasses could not be cultivated.
Melica nutans,	
Melica uniflora,	
Bromus asper,	
Bromus pinnatus,	
Bromus sylvaticus,	
Bromus giganteus,	
Festuca calamaria,	
*Holcus mollis,	

Alopecurus geniculatus	} Five grasses growing in moist meadows, marshes, and watery places, where others would not thrive.
Agrostis canina,	
Festuca fluitans,	
Poa aquatica,†	
Aira aquatica,	

Poa maritima,	} Three grasses growing in and about salt marshes.
Poa distans,	
Rotbollia incurvata,	

Festuca

* A variety of this species, with silver-striped leaves, has been sent to the Botanic gardens by Mr. Edward Hodgins, nurseryman, which he found growing in the county of Wicklow.

† Found in a state of great luxuriance, on the south bank of the river Liffey, between Island-bridge and Chapelizod, by Mr. Luke Wall of Steevens's Hospital.

Festuca ovina,
Festuca vivipara,
Festuca rubra,
Festuca duriuscula,
Festuca dumetorum,
Poa angustifolia,

Six grasses which hold
 their verdure during
 the winter.

Eriophorum angustifo-
lium,
Eriophorum polysta-
chion,
Eriophorum vaginatum,
Nardus stricta,
Melica cærulea,

Five grasses that grow in
 mountain bogs, and
 boggy situations, and
 afford nourishment to
 cattle in winter, but
 in summer they are
 left untouched.

Lolium temulentum,
Lolium arvense,

Two grasses that might
 be sown with red clo-
 ver to produce green
 fodder.

Bromus sterilis,
Hordeum murinum,
Poa annua,

Three grasses which pro-
 duce early foliage in
 gravelly or waste places,
 the last grows in almost
 every soil and situation.
 It continues growing,
 flowering and seeding,
 almost the whole year
 round; is a low grass,
 but very productive.

Triticum

Triticum repens,

An early grass in foliage,
and chiefly to be found
in old kitchen gardens,
and in good spots of
farms.

Hordeum pratense,

A grass growing in moist
rich meadows, more
desirable for its leaves
than stems.

Aira cæspitosa,

Arundo Phragmitis,

Arundo colorata,

Elymus caninus,

Four grasses useful for
thatching ricks, &c.

Triticum junceum,

Arundo arenaria,

Two grasses fit for pre-
serving banks along
the sea shore.

Elymus arenarius,

Elymus giganteus,

Elymus geniculatus,

Three grasses, not indi-
genous, useful for the
same purposes as the
two last mentioned.

Hordeum maritimum,

Phalaris arenaria,

Triticum loliaceum,

Panicum Crus galli,

Four grasses growing in
sandy and gravelly
soils near the sea shore,
affording some nou-
rishment in such places.

Aira

<i>Aira præcox,</i>	}	Four grasses which grow on barren rocky grounds, and produce verdure where better grasses would not thrive.
<i>Aira caryophyllea,</i>		
<i>Festuca bromoides,</i>		
<i>Poa rigida,</i>		
<i>Agrostis minima,</i>	}	A small grass flowering early in the season, on barren clayey hills.
<i>Bromus arvensis,</i>	}	I shall say nothing of its merit, not having it for any length of time in cultivation.

An attentive perusal of the above table will be sufficient to convince any reflecting man of the futility of an opinion which generally prevails in this country, namely, that there are but six or eight grasses worthy of cultivation, and that all the rest are worse than useless. For it will be seen that each grass, however insignificant in appearance, may be of use in its proper place, that each situation has its peculiar herbage, and that mountains, bogs and ditches, which would be totally barren if those grasses which are reputed useless were eradicated,

cated, afford no small quantity of excellent pasture. It will be seen that the less valuable grasses often afford a necessary support to the more productive; and that some, which are comparatively insignificant when cultivated separately, become in conjunction with others of the utmost utility. It will be seen that the great Creator of the universe, who has made nought in vain, has given to each soil its peculiar grass, and to each animal his appropriate food.

FINIS.

REFERENCES TO PLATE I

1. Roots.
2. Root leaves.
3. Stem or culm.
4. Stem leaves.
5. Knots or joints.
6. Sheath with the spike bursting forth.
7. Sheath enclosing the stem.
8. Sheath scale.
9. A spikelet or little spike.
10. Valves of the calyx.
11. Valve of the corolla magnified.
12. Keel of the corolla.
13. Awn.
14. An awn magnified.
15. The stamens, or male parts.
16. The anthers supported by the filaments.
17. Anthers bursting forth from the corolla magnified.
18. Styles, or female parts.
19. Do. magnified.
20. A seed covered by the corolla.
21. A naked seed.

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2. Root leaves.
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4. Stem leaves.
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17. Anthers bursting forth from the corolla magnified.
18. Styles, or female parts.
19. Do. magnified.
20. A seed covered by the corolla.
21. A naked seed.

REFERENCES TO PLATE II.

1. Roots.
2. Do. proceeding from the joints whilst the stems are in a procumbent state.
3. Root leaves.
4. Stem in a procumbent state covered by the sheaths.
5. Do. rising upright and covered by the sheaths.
6. Stem leaves.
7. Knot or joints.
8. Sheath with the spike bursting forth.
9. Do. inclosing the stem.
10. Sheathscale.
11. Branches of the panicle.
12. A little branch.
13. A spikelet.
14. Do. magnified.
15. Valves of the calyx after drawing up the enclosed florets.
16. Keel of the calyx.
17. Valves of the corolla.
18. Keel of the corolla.
19. Stamens or male parts.
20. Do. the natural size.
21. Anthers supported by the filaments.
22. Do. magnified.
23. Styles, or female parts.
24. Do. magnified.
25. A seed.
26. A woolly substance adhering to the seed, particularly in the *Poa trivialis*, and the *Poa pratensis*.
27. A woolly substance which appears when the flumes of the corolla are drawn out of the glumes of the calyx.

REFERENCES TO PLATE II.

1. Roots.
2. Do. proceeding from the joints whilst the stems are in a procumbent state.
3. Root leaves.
4. Stem in a procumbent state covered by the sheaths.
5. Do. rising upright and covered by the sheaths.
6. Stem leaves.
7. Knots or joints.
8. Sheath with the spike bursting forth.
9. Do. inclosing the stem.
10. Sheathscale.
11. Branches of the panicle.
12. A little branch.
13. A spiket.
14. Do. magnified.
15. Valves of the calyx after drawing up the enclosed florets.
16. Keel of the calyx.
17. Valves of the corolla.
18. Keel of the corolla.
19. Stamens, or male parts.
20. Do. the natural size.
21. Anthers supported by the filaments.
22. Do. magnified.
23. Styles, or female parts.
24. Do. magnified.
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* Ch is always to be sounded guttural.

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